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Per. 1918 d. $\frac{129}{23}$

THE

FLORICULTURAL CABINET,

AND

Florists' Magazine.

JANUARY TO DECEMBER, 1855.

BIBLIOTHECA · BODLEIANA ·

LONDON:
SIMPKIN, MARSHALL, & CO.,
STATIONERS' HALL COURT.

1855.

LONDON:
THOMAS HARRILD, PRINTER, SILVER STREET,
FALCON SQUARE.

PREFACE.

We prefer, in general, that each number of our Magazine shall not only furnish our readers with the means of estimating its merits, but at the same time obtain their entire approval, to realize which our uniform efforts have been directed.

We do not wish, however, to neglect the opportunity, which custom yearly supplies, of reverting to its progress (and this in several respects is a very pleasing task), and to renew our assurances that its future improvement will always be determined by our own or our readers' discovery of its necessity and means of accomplishment.

By glancing over the pages of the present volume an opinion of its merit will be obtained, that we cannot allow ourselves here to express.

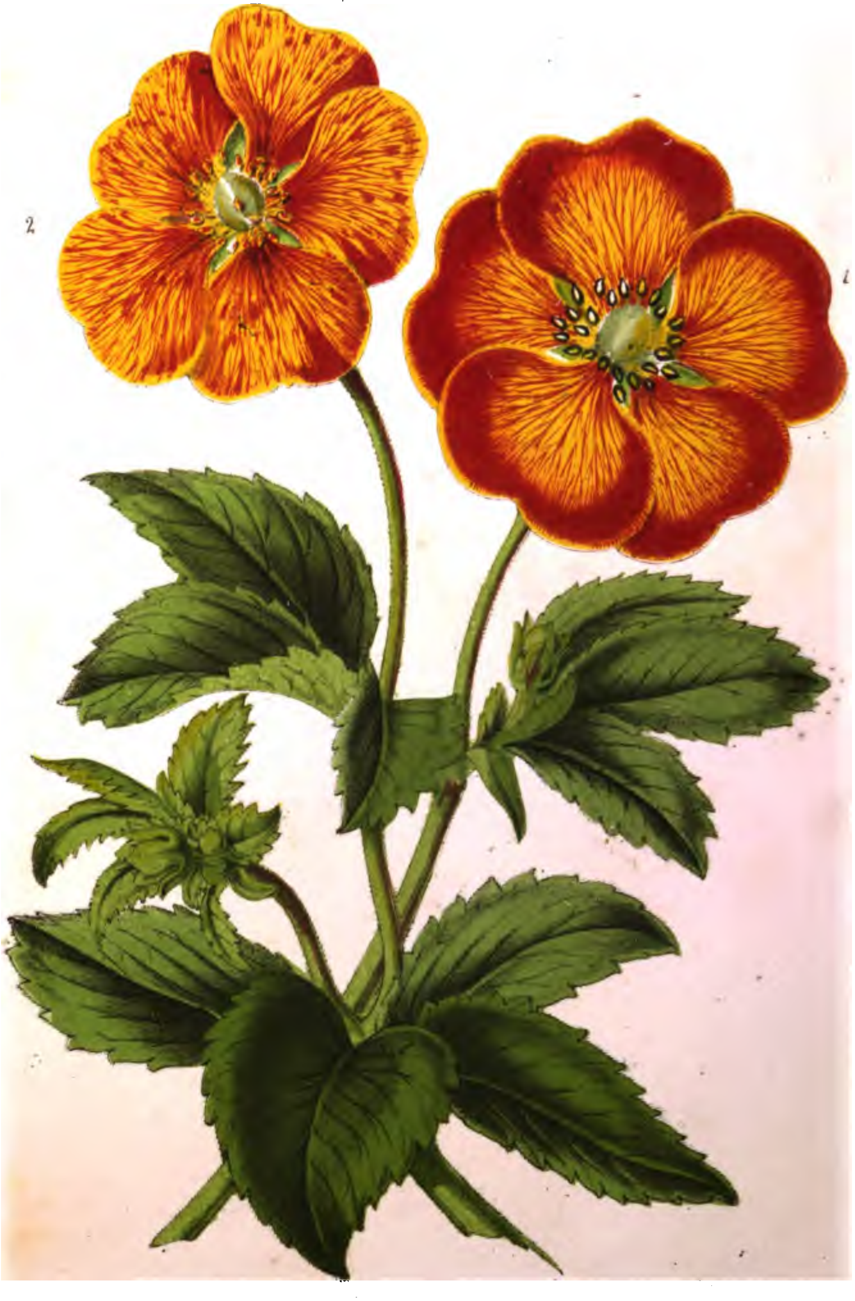
Twenty-three years have now passed since the Floricultural Cabinet first appeared, and the completion of so many volumes furnishes us an appropriate occasion for surveying the path we have pursued as Editor thereof. In doing so, it is peculiarly encouraging, and affords us considerable satisfaction to have had *practical results,* as an evidence that our efforts have constantly met with steadfast and munificent support To these unequivocal testimonies in favour thereof we refer with grateful pride, conscious that for such success we have been much indebted to the number, variety, and practical value of those communications with which we have been enabled to enrich its pages.

These united advantages have rendered the Floricultural Cabinet unequalled in value as a floral publication. To have been raised to so elevated a position, we are free to acknowledge has, during each successive year, increased the debt of gratitude due from us to our supporters; we beg, however, again to record our grateful sense of obligation, and we very respectfully and sincerely tender our thanks to Subscribers and Correspondents. But while we thank our friends for their assistance, we beg for its continuance, and with it we will adopt all available means for maintaining the interest and usefulness of the publication, so that the utmost equivalent shall be given to our Subscribers in *floral* information.

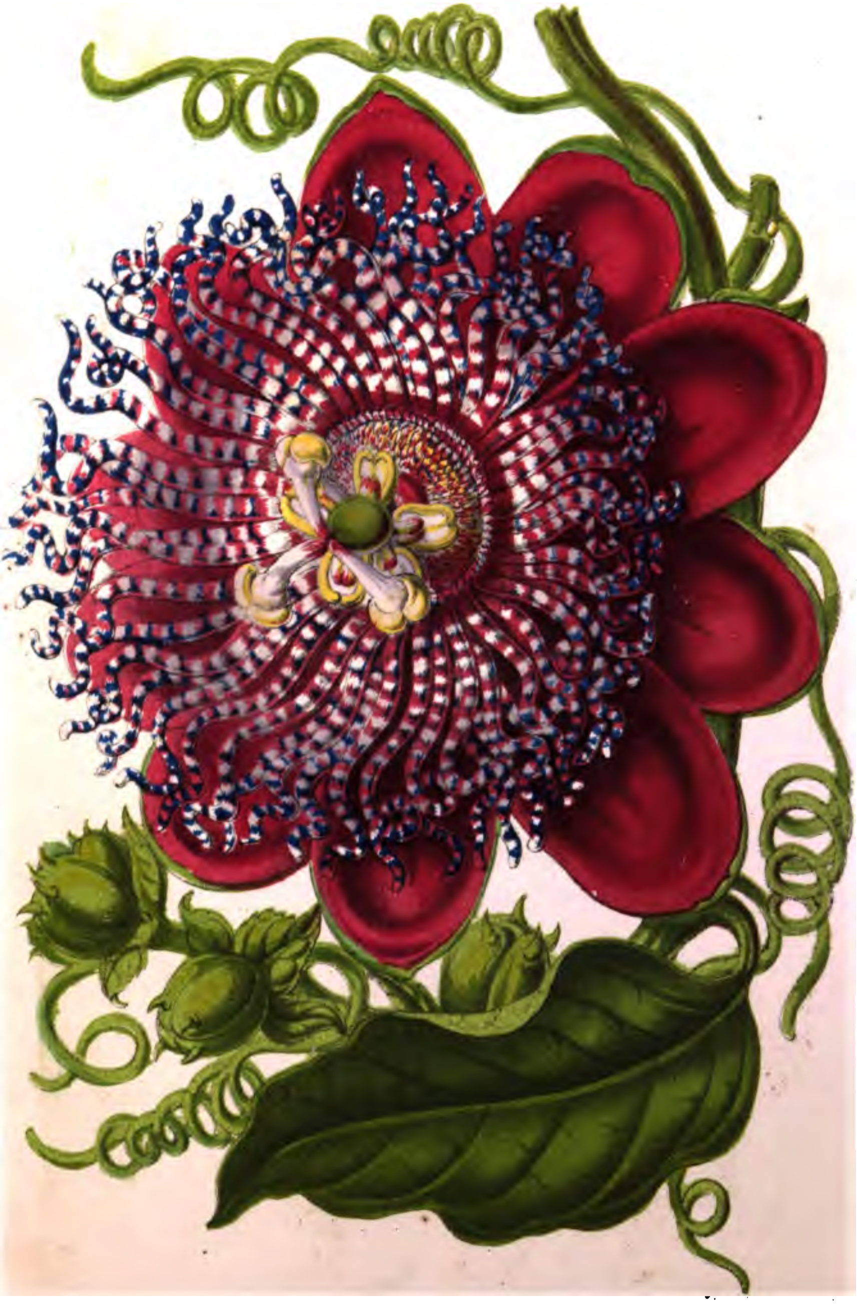
During the present year we have been highly gratified with receiving numerous testimonies of approval and admiration of the excellent designs of grounds and gardens which have been so liberally and cheerfully supplied by Thomas Rutger, Esq., and appeared in the successive numbers of our Magazine. At the particular request of several correspondents, we are asked thus to record their respectful thanks (in which we most sincerely unite) to that gentleman for his favours, and they hope for a continuance of his valuable contributions.

As by the common course of nature some of our friends pass away, we solicit those remaining to favour us by a recommendation of our Magazine to others, and we will use every endeavour to give proof of our gratitude for such kindness.

With such encouragements we reiterate the assurance to our Subscribers, that no practicable means of rendering this publication *additionally and enduringly attractive,* and worthy their support and recommendation, shall remain untried.



1. Potentilla Wellingtonia.
2. Potentilla striata formossissima.



Passiflora quadrangularis Decaisneana

The Floricultural Cabinet.

JANUARY, 1855.

ILLUSTRATIONS.

PASSIFLORA DECAISNEANA.

This superb genus of climbing plants, of which we now have so splendid a collection in our own country, was unknown before the treasures of the western world were discovered by Columbus.

Its ancient American name is *Murucuia*, or *Maracoc*, but when first found by the Spaniards in South America, they called it *Granadilla*, from a resemblance they conceived its fruit to bear to that of the pomegranate, which is *Granadilla* in Spanish. It appears to have been cultivated in Europe about 250 years. A plant of *Passiflora incarnata* was figured in a work published at Paris, in 1612. We find it pictured too by Dr. Aldine, in 1620, from a plant that had flowered in the garden of Cardinal Farnesius, in Rome. In 1629, Parkinson tells us that it had not, up to that time, fruited in England.

When it was first introduced into Italy, superstition found a mysterious representation of the passion of Christ in the flower; and the crafty, who are always ready to impose on the credulous, soon turned this vegetable prodigy to account. To such a height was this ridiculous fantasy carried, that figures of the flower were manufactured for devotional purposes, instead of the presumptive symbol.

We have already observed that the original name was *Murucuia*, and one of the poets, musing upon it, wrote as follows:—

"Beneath the covert of o'er-arching trees,
Bright *Murucoia* woos the cooling breeze.
The passing Indian turns the admiring eye,
Smit by the glories of her crimson dye,
And stops in pleased attention to survey
Her vivid leaves and variegated ray.
But loftier thoughts the rising mind inspire.
When warm devotion lends her holy fire.
Haply amid the convent's virgin train,
Bosom'd in shades beyond the western main,

At rosy morn, or evening's silent hour,
Some fair *Enthusiast* views the sainted flower,
When lo! to rapt imagination's eye,
Springs the sad scene of darkened Calvary!
The thorny crown the heavenly brows around,
The scourging thorns, the galling cords that bound,
And nails that pierced with agonizing wound;
Sudden she lifts to heaven her ardent eye,
In silent gaze, and solemn ecstasy;
Then, fill'd with timid hope and holy fear,
Drops on the flower a consecrated tear."—SHAW.

Linnæus changed the name from *Flos-passionis* (Passion-flower) by combining the words into the technical name of *Passiflora.*

The pinky flesh-coloured (*P. incarnata*) was the first species known in Europe, and introduced into England in 1629. A period of sixty years elapsed before another species was obtained, when, in 1690, the following three were received—*P. laurifolia, P. miniata,* and *P. cærulea.* The latter is the common *blue* flowered, which thrives in the open air in England, and trained against a south aspected wall, or trellis, is one of the loveliest of floral objects. In a warm and sheltered situation it flourishes and blooms in profusion, trained up a pillar in the open bed or border; also trained to a low wire-work frame, of six inches to a foot high, it forms a charming edging to a bed of flowers. In either case the plants are readily protected in winter, where they are planted, or can be taken up, repotted, and wintered where they are *just saved* from frosts, in a greenhouse or frame. The following spring (early in May) they are turned out again into the open ground. This handsome species, in the Brazilian forests, climbs to the height of sixty feet, forming festoons from tree to tree, which are profusely spangled with these brilliant *stars* in the most superb manner. There are several other species that thus flourish in these forests, and have flowers that are crimson, red, and scarlet, and we are informed that *P. racemosa,* crimson bunch-flowered, is one of the most conspicuous.

The one we now figure, *P. Decaisneana,* far eclipses all others in splendour, and is as much superior to them as our present first-rate Dahlias are to the original *single-flowered* one introduced from Mexico.

Its origin is somewhat uncertain; by some it is considered to be an hybrid, raised between *P. alata* or *P. quadrangularis,* impregnated by one of the brilliant scarlet or crimson kinds. Its flowers are much like those of *P. alata* in form, and are very sweet scented. The plant grows and blooms very freely, the large elegant flowers being highly ornamental. It succeeds well in a stove, conservatory, or good greenhouse; and either trained to a pillar, under a rafter, against a wall or trellis, as also grown in a pot, and coiled round a wire framework. It is readily increased by being grafted on the stock of *P. edulis.*

TREATMENT OF CAMPANULA PYRAMIDALIS.

BY MR. WILLIAM TAYLOR, GARDENER, ELLINGTON HOUSE, MONKSWELL, YORKSHIRE.

By the following method of cultivation I have produced, for several successive years, the most magnificent blooming specimens of this highly ornamental plant that have hitherto been produced in this country, at all events, as far as the testimony of many gardeners and others bear me out, or any record in publications that I have seen. I forward the particulars of treatment, hoping it will be useful to others.

About the beginning of May sow the seeds on light soil, in a warm situation below a hand-glass, and cover them about one quarter of an inch deep. After the plants appear above the soil, they should have air, increasing it as the plants get strength—never allowing the soil to become dry, which, if it does, the plants will make little progress. When they get about one inch high, they should be planted into a bed prepared beforehand; the soil of this bed should be thrown out to the depth of one foot, and on the bottom lay a few inches thick of good rotten dung, filling up with good, light, rich soil. In pricking out the plants, care must be taken not to break or damage the roots, if possible. When they are planted, about an inch of dung should be spread over the surface amongst the plants, to retain moisture. An east or west aspect is better than the south or north. If the weather prove dry, the plants should be regularly supplied with dung-water. By autumn they will have made great progress, and be strong plants. Through winter they should be protected from severe frosts, by having a little loose hay or straw laid over them, but not so heavy as to break the leaves of the plants.

In March following the plants should be examined, and if any have the appearance of throwing up a flowering stem, the plant should be carefully lifted, and the flower-stem cut off, in the same manner as in cutting sea-kale, leaving a few buds to each crown. The lifting of the plant is to retard its growth; for, if cut over, and not removed, it would quickly shoot forth more flowering stems, to the great hurt of the plant. When planted again, they should be placed a little more distant from one another, and shaded from the sun (if powerful) for a few days. If the weather be dry, the plant should get a regular supply of dung-water at least three times a week; for it is only by supplying them liberally with manure in a liquid state that we can expect much success. The plants by autumn will be very strong, and will require a little more care in protecting through winter. After the plants have done growing in October, the ground should be covered to the depth of three or four inches with old tan, sawdust, or coal ashes, but not so deep as to cover the point of the shoots; and if frost be severe, cover as before with hay or straw.

In the third year, before they begin to grow, they ought to be taken to the flower-garden, with their balls and roots as entire as possible, and either planted in beds by themselves, prepared for their reception, or singly; when the latter is the case, the soil ought to be taken out to the depth required, and its place supplied with good rich soil. They should be planted in a warm situation, and where they will have the benefit of pure air; a few may likewise be put in pots for ornamenting the greenhouse, dwelling-room, or entrance hall, and if one be placed in a shady part thereof, the flowers become of a beautiful cream colour, and are very handsome. As the plants advance in growth, they must be supported accordingly. It may perhaps seem incredible to some of your readers to be informed, that the plants treated in the manner above described will grow to the height of between eight and nine feet, covered with a profusion of bloom to within a foot of the ground. The plants being supplied with the dung-water, causes them to grow so luxuriant as to throw out a great quantity of side shoots, and these also throw out others, which in their turn flower, causing the plants to have a splendid appearance at that season of the year when most of the flowers that bloom late in autumn are of a yellow colour.

I have grown plants, with the above treatment, producing upwards of forty shoots, all in flower at one time, with a centre shoot eight and a half feet high. After the plants have flowered, they may be destroyed, for they will be found not to be worth bestowiug any trouble upon; indeed, most of the plants will die.

Gardeners in general cultivate this plant under a wrong idea; that is, if any dung be added to the soil, "it is certain death to the plant." Now this is the result of giving ear to persons who have never put this plan in practice.

GRAFTING AND BUDDING THE RHODODENDRON.

BY MR. WATERER, BAGSHOT, SURREY.

OBSERVING in a late number of the CABINET some remarks on propagating the Rhododendron and similar shrubs, has led me to forward the following observations on the process of budding and grafting.

The success of budding depends greatly on the state of the stock; if this is growing vigorously, and the bark flies up quite freely on the introduction of the budding knife, the budding will hardly fail of success; if the young shoots of the stock are nearly ripened to the top, the bark is in the way of beginning to fasten to the wood; or if the shoots are small and weak, and the plant unhealthy, the bark, most likely, has not risen at all; in either case, the bark will not rise freely from the incision with the handle of the knife, the sap is not circulating freely, and it is in vain to attempt introducing a bud by forcing up the bark. The bud should be chosen from a vigorous young plant, the shoots from old trees not having so much sap or vitality; and the bud should be chosen when the bark is beginning to assume a ripe colour; if too ripe, it does not rise so freely from the bark, and vitality is beginning to get dormant; if too green, it is apt to perish before uniting to the stock. The buds should be tied as soon as possible after the operation, to exclude air from the wounds; but if the stocks are vigorous, drawing very tight is not of so much consequence here as in grafting. When buds are nearly ripe, in which state they succeed best, the piece of wood which unites the bud to the branch is apt to break off far in, and leave the appearance of a hollow eye. Some operators attach great importance to this, and say that, though the bark live and unite, the bud will not push in the spring; but I have frequently inserted buds with very hollow eyes, and marked them for the purpose of experiment, and they always pushed as well as the others: the sap of the tree should soon fill this hollow. Much of the success also depends on having the edges of all the cuts smooth, and the operation done as speedily as possible. If the edges of the wound are rough, the vessels of the liber, where the living principle is most active, are bruised and lacerated; and if long exposed to the air, they begin to spoil. The common method of extracting buds is to cut away a piece of the shoot, and afterwards extract the wood; but this destroys the very sharp edge of the knife, and the cut will invariably be found more or less rough. The bark should be cut all round the bud to the shape and size wanted, and the thumb pressed against the cut portion, at the side of the bud; if the shoot is growing and healthy, the bud will separate freely, and there will be no laceration of the edge; the bark will be cut as smooth as a piece of cheese, and the edge of the knife will be kept sharp, as no wood needs to be cut through. As far as mechanical operation is concerned, this cutting smooth is of far more importance than any method of inserting the bud; if the bud does not squeeze freely off the branch with the side of the thumb, it is very doubtful of succeeding.

Much of the success of grafting depends on keeping the alburnum, or newest layers of wood and liber, or inner bark of the stock and graft, closely united and pressed together, till a complete union takes place; it is in the bark and soft wood that the development is most rapid, though all the cellular tissue is capable of uniting. For this purpose they should be as near of a size as possible, and the slice from each should be very small, allowing as much of the alburnum as possible to remain on both—it is there where the sap rises; and if the slice is made, either in graft or stock, through to the heart-wood, the ascent of the sap is stopped, except by the edges. The graft should not be put on till the stock has commenced to grow, when the new layer of inner bark is about to be formed, and the efforts to unite commence; both stock and graft are apt to dry and shrink, or cling, and thus part from one another, if done long before the commencement of growth. The grafts should be taken off before they begin to spring, and their ends inserted in damp earth; as they will cling more if taken off after they have begun to swell by growth, and thus part more from the stock. Also, if the living principle is set in motion by the commencement of growth before taking off, and then checked by taking off, or by cold weather succeeding warm, the graft will perish more readily than if the growth of the stock had commenced first, and the graft been fed from the union of the tree; for this purpose, the grafts of deciduous plants should be taken off before they begin to swell in the bud; as, if growth has commenced, it will proceed further in the graft, though off the plant, and be hurtful. Neither seeds nor cuttings will perish near so readily when in a dormant state, as when life is set in motion, and then checked. To prevent clinging or shrinking, choose well-ripened wood. The young shoots of young trees, or the bottom growths of old trees, are generally more vigorous than the extremities of old trees, vitality is more active in these young shoots; but in grafts that have the young wood soft and apt to cling, choose strong, vigorous, two or three years old wood. Many grafts that succeed with difficulty, if the grafts are retarded, the old wood chosen, and the stock allowed to spring before grafting, will succeed in this way, when they will do so in no other. Much of the success, however, depends on the warmth of the weather keeping the sap flowing, Moist, warm weather is good, but heat is the principal requisite, the stocks being already established; and wet weather is very often cold in spring. The mechanical part of the operation depends on the slopes of the cuts being made to fit one another exactly, which is easiest done by choosing the slopes of the graft to fit those of the stock as nearly as possible, by thin slices being taken off each; by using a thin-backed, broad-bladed, sharp knife; and by drawing the hand straight, without twisting, when making the cut. The graft and stock must be hard pressed together, without shifting, in the tying; which is best done by a smart hitch or pull, every time the wet bast ligature passes the graft in the act of tying, and not by continued pulling. The above remarks apply chiefly to whip-grafting, which is the most common. Crown-grafting is that most practised for old trees; and the necessity to take off the grafts, and allow the stock to push, is here absolute, as the operation cannot be performed properly till the bark rises freely from the stock. When the bark rises freely, success is very certain in this way, if the grafts are strong and not sprung; as the flow of sap causes union to take place speedily, and the strong bark keeps the graft in its place. If the bark and wood of the stock do not separate freely, it is in vain to attempt grafting in this way. Grafting soft evergreens, as Rhododendrons, Daphnes, etc., is best done by waiting till growth has fairly commenced, either the first, pushing in spring, or the second, in summer, and inserting the graft in the manner of a bud, by opening the bark of the stock. The grafts of these must not be taken off till needed, as they are not dormant like deciduous grafts, and more apt to perish. The bark will not rise till growth has fairly commenced, and dull, cloudy, moist, warm weather suits best; if dry and sunny, they should be shaded. With evergreens a few leaves are left on the top of the stock to draw up the sap, and to carry on the growth; it is useful in the grafting of all soft evergreens.

Increase by layers is often adopted with evergreens, and is generally successful where circumstances admit of it. Take care to tongue the layer close under a side bud, and keep the tongue quite open, and the part above the tongue to be made as perpendicular as possible, the two being at right angles, which causes the sap to accumulate, and so form a swelling of cellular matter at the bottom of the tongue, from which the roots proceed. A little fine sand put round the cut prevents the wound corroding in heavy soils, and by pressing on the bark, as in cuttings, promotes the rooting. The layer must be kept steady by a peg, but where the shoot is long and likely to be shaken by wind, that must have a support to be tied to.

SUITABILITY AND BEAUTY OF MESEMBRYANTHEMUMS FOR ORNAMENTING ROCKWORK.

BY A NOBLEMAN'S FLOWER GARDENER IN BEDFORDSHIRE.

I HAVE sent the following particulars of this charming family of plants, for insertion in the January Magazine. It is to encourage their more general cultivation out-doors, on rockwork, during the summer season. For several years I have grown this showy tribe of plants on pieces of rockwork on the side of a steep bank, facing the south, and on the north side of my flower-garden. The plan which I have practised with these plants is as follows:—About the month of May I select a quantity of cuttings, taking large pieces several inches in length from those kinds which run to stems. Having taken one or more cuttings from each kind, and allowed them to lay on a dry shelf for a day or two, they are inserted into pots about three inches in diameter; the soil is laid with a little peat and sand. They are then placed in a close frame, or a shady part of the greenhouse; the soil in the pots is just kept between wet and dry, and in this way they remain for a month or six weeks, when they may be removed into a more airy part of the greenhouse. These are now cultivated on the shelves of the greenhouse till the following May, when the same process is again adopted. Towards the middle of May I examine my plants, and select all the oldest duplicates; these are removed to the rockwork already mentioned, and carefully planted, with the stems laid round the roots, and the branches are then divided equally round the plant, placing a few small stones over them; here they will throw out roots, which adds strength and vigour to the plants. When all are planted in this way, they are then well watered; and this, with the exception of keeping down weeds, is all the care they require throughout the summer. To prevent heavy showers from dashing up the earth on the leaves and stems, I cover the whole of the beds or patches either with moss or small stones. In this way the Mesembryanthemum delights to ramble and grow; and during sunny, dry weather, nothing can be more gay and brilliant than the flowers of this sun-loving genus.

ON THE TREATMENT OF MANETTIA CORDATA AS A STOVE PLANT.

BY A FOREMAN AT KEW.

ONE of the most beautiful plants that I know is Manettia cordata, when treated in the following manner. Suppose the plant small, young, and healthy, and in a pot of four or five inches in diameter, and pretty well rooted, shift it into a pot a size larger; but the pot ought by no means to be more than one size larger. Put a stake or support, of sufficient length, to which the slender or twining stems should be carefully tied. Syringe the foliage, over and under, and plunge the pot in a mild bottom heat; suppose it to be the back part of the bark bed of a pine stove, when the heat is very mild. Before the plant begins to run rapidly, it ought again to be shifted into a pot of eight or nine inches diameter. It may then be trained to some of the columns, or other supports, and directed in any way most convenient to the arrangements of the house. When the plant is trained to the columns, which are, of course, fixed, it is desirable to attend to the plant, in order to prevent it from suffering injury by the subsiding of the bark bed. When this takes place, the pot continues to settle with the bed, and the plant, in such cases, not unfrequently becomes what is termed "hanged," or drawn out of the pot, and broken at the neck. It does well, too, trained to a wire framework.

By treating this plant in the manner described, I have seldom seen anything more ornamental. I have had it continue in one mass of scarlet tube-shaped flowers for months together.

CULTURE OF CEREUS, EPIPHYLLUM, AND OTHER CACTÆA.

BY HORTULANUS, OF THE ROYAL GARDENS AT KEW.

I DO not know any plants that are more beautiful and ornamental when in bloom, and certain to produce flowers, than the above named are.

Previous to my coming here, I had a plant of *Cereus speciosissimus* that had, at one time, 264 blossoms upon it.

My mode of treating this, and most of the fine flowering kinds, is very simple. I grow them as rapidly as I can during the early part of the summer, and when they have made their shoots and finished blooming, I pot them into fresh soil, which should be rich and stiff. I use pieces of clay, manure, leaf-mould, sand, brick-dust, and turfy loam, none of which are finely broken, and are put round the roots of the plant, without being pressed down. This is then well watered, and the plants are set in some cool shade for a week or ten days; they are then plunged in sand out of doors, fully exposed to the sun. The roots are kept moist and cool, but not wet. They are allowed to remain here till towards autumn; they are then brought into the greenhouse and placed in the coolest end, either on shelves or stages. Here they are allowed to become very dry. About the month of April they are removed into the vinery or plant stove, as the case may be. They are watered freely, and being submitted to a very gentle temperature, which becomes gradually higher, the plants generally bloom most abundantly towards the end of May or beginning of June.

CULTIVATION OF SCHIZANTHUS HOOKERI AND RETUSUS AS BIENNIALS.

BY THE FOREMAN OF A LONDON NURSERY.

Few annuals are more beautiful, or deserving greater attention and care, than Schizanthus Hookeri and retusus. I beg, therefore, to have put on record the following remarks descriptive of the method adopted in this extensive nursery, and which has in this instance been attended with unexpected but astonishing success.

The seeds were sown in the open ground, in a cold open situation, about the end of March or beginning of April, 1836. The plants were allowed to stand a foot or fifteen inches apart, and this induced them to throw out a number of short lateral branches from quite close to the ground, the largest of which did not attain to more than three or four inches in length when winter had arrived. Part of the plants were lifted in the course of the autumn, with large boles of earth to each, and placed in pots about nine to twelve inches apart; they were placed close to the front sashes of a large airy greenhouse, and sparingly supplied with water. In this way they survived the winter in a very healthy condition, and have now been in flower upwards of two months. The largest plant is four feet in height, and of nearly equal breadth, with seventy to eighty principal branches clothed with innumerable flowers of unsurpassable beauty.

The plant itself may be justly regarded as a hardy biennial, for notwithstanding the unusual severity of the past winter, and the large and forward state of the plants, most of those left in the open ground were but little injured, until carried off by the intense and almost unprecedented cold of April, and the latter part of the month of March.

SUITABLENESS OF IVY TO FORM MARGINS FOR WALKS UNDER THE DROP OF TREES.

BY A PRACTITIONER.

It is now nearly twenty years since the flower-garden and the walks connected with the pleasure ground here were made. The walks have been retained without any alteration, and some of the flower-beds are still in the form they were first laid down. In the pleasure ground, the walks were bordered with *margins of grass*, of various breadths, and for some years this could be kept in good repair, but in course of time they became overhung and so much shaded by trees, that the grass decayed; and although it was more than once replaced, and that at considerable expense, it refused to assume that pleasing and healthy appearance which it once possessed. Finding, therefore, that grass could no longer be grown, it became desirable to remove the earthy and gloomy appearance of the sides of the walks, and, as a substitute, Ivy was thickly planted in those parts which the grass previously occupied, and in less than two years the surface of the ground was completely covered with the *fine rich foliage of the Ivy.* The edges of the walks are kept neatly cut from time to time, and the effect of the whole is very good. The above remarks are thrown out under an impression that the cases to which they apply are numerous. Indeed, I have myself witnessed many instances where walks have been carried through thick and shadygroves, so that the surface of the ground, on either hand, presented nothing but a dreary waste, without a green blade or leaf to enliven the scene; whereas, had Ivy been introduced, patches or festoons of its glossy green foliage would have here and there met the eye, affording a very pleasing contrast to what has just been noticed above.

TREATMENT OF LAGERSTRŒMIA INDICA.

BY THE FOREMAN OF A LONDON NURSERY.

In several of your notes on select flowering exotic plants, I observe you particularly recommend the above plant, and I beg to add my testimony, too, of its excellence; for its beauty, splendour, and interesting appearance are not surpassed by any other exotic that I am acquainted with, when it is properly managed.

There are under my care the original *species*, *L. Indica*, and the following *varieties*, viz., *rosea*, *rubra*, and *violacea*. The three varieties are of *dwarfer habit* than the original species, and bloom even more profusely. The flowers of all of them are produced in panicles, or trusses, at the ends of the young shoots of the current year; are from six inches to ten inches long, and from eight inches at the base to four inches through, and each panicle or truss will have from twenty to fifty flowers fully blown at the same time, and others are still coming forward. Upon the first opening of the flower, it is seen to greatest advantage, as the *glittering golden yellow* of the stamens make a dazzling contrast with the richly coloured petals, which are beautifully formed, the limb being gracefully *waved and curled*, and connected to the inside of the segment of the calyx by a longish narrow claw. Each blossom has six petals, and, when fully expanded, are about two inches across. In the early part of their blooming, they are fragrant. The plants produce in quantity of panicles according to the size of the plant. I have one large plant of the original species, which had the past summer 123 *panicles*, and attribute its doing so this year to having cut out all the weakly and crowded branches from its head, and side spray from the stem. Just after it had made its first growth in spring, being liberally supplied with water, and all suckers, as they made their appearance, cleared away, it again commenced growing, and produced the flowers. Though I have met with the *Lagerstrœmia Indica* in several collections, yet never before having seen it in flower, I am inclined to believe that it seldom does so in this country; but have little doubt, that if more care were bestowed on its cultivation, with a judicious thinning out of useless wood, as in the above case, this very valuable object might be much more frequently obtained.

It flourishes best in a yellowish sandy loam, and a free drainage, care being taken to have a sufficiency of pot room, as it roots freely; also to give it a liberal supply of water during its period of growth.

I always give it a winter's quiet of rest, and place it in a cool part of the greenhouse, and when it has shed its leaves, I cut out all *weakly* shoots, and shorten (one-third of the length) the strong ones that I retain, and previous to the buds pushing, in February or March, I repot into a size larger, first reducing the old ball a little by the fingers, and then fill up firmly with new soil. I place the plant in a *half-stove* temperature for the first six weeks, then remove into the greenhouse. I give, whilst it is growing, manure-water twice a week. When the blooming is over, 1 gradually diminish the quantity of water, and allow it to go to rest, only keeping the soil from becoming *dust-dry*. The principal particulars of treatment are, allow a rest, prune out weak shoots, cut back the strong ones one-third their length, give an extra warmth till the new shoots have pushed an inch or two, and place the plant in a cool situation in the greenhouse in winter.

With such attention, *all* the kinds will bloom in vast profusion. The dwarf growing, of from two to three feet—quite bushes—are objects of great ornament for any greenhouse. I observe, in a recent number of this Magazine, that the *L. indica* grows and blooms freely out-doors, trained to a wall, in Devonshire and Cornwall.

GRAFTING PELARGONIUMS.

BY A LONDON AMATEUR CULTIVATOR.

Having paid considerable attention in grafting these beautiful flowering plants, both as standards and dwarfs, I forward for insertion, in an early number, the particulars of my mode of treatment. It is not only for the novel and interesting appearance of the plants, having several distinct varieties on the same stem, that I recommend this mode of culture; but it will be possible to grow four times the number of varieties in the same house, to equal perfection, and in some cases (particularly the weak growers) I think better, so that the proprietors of small greenhouses, instead of throwing away annually many of the good old kinds, to make room for new ones, might graft half a dozen or more upon one stem, for the sake of preserving them.

It is requisite to select a few of the healthiest and strongest grown plants, two or three years old, with as many shoots on each as can be found. I do not recommend *older plants*, for they never grow so well as young ones. I have generally put in a few cuttings of the *strongest growing* kinds for stocks, and potted them off as soon as struck root; then placed them in a frame and shaded, until they have made fresh roots, when I pinch off the leading shoots to keep the plants dwarf, and make them push lateral ones. After they begin to grow, a little manure-water occasionally is of service to them, as it will make them grow much stronger, and the success of grafting a great deal depends upon having *well-grown stocks*. I repot them into a size larger pots in the course of summer, and cut them down in August to within three eyes of the base of each shoot, and treat them the same as the other plants.

The stocks are repotted into a size larger pots, about a month before they are wanted to graft upon, and cut down to a clear grown part of the shoot, about two inches from the last year's wood, two or three days previous to grafting, to allow the exuberant sap to escape. The operation may be successfully done from March to August, but I have generally found them do *the best* in June or July, as both stocks and scions are much *firmer* than they are at an earlier period of the year, and, consequently, not so liable to rot—a disease the operator will find to be the most difficult of any that he will have to contend against. After the stock has done bleeding, the operator must select a number of well-ripened shoots, about three inches long, for *scions*, which ought to be from as *dissimilar* kinds as possible, and much of the same habit; for if *strong* and *weak* kinds be put upon the same plant, the strong kinds will injure the weaker ones. There must be no more leaves dressed off than possibly can be avoided. I have tried several different methods of grafting them, but have always found that side or whip grafting, *without the tongue*, to answer best; for if they be put on with a tongue, it generally rots, and either causes a bad joint, or the death of the shoot altogether. The operator must have a sharp knife (the thinner the better), some damp moss, and ligatures of cotton wick or bass matting; then make a sloping cut *through* the *scion*, about an inch and a half long, and a similar cut upwards in the *stock*, but no deeper than to admit the inner rind of the bark in the scion to touch both sides of the bark in the stock; tie them together, taking care not to bruise the bark, as that would cause the shoot to rot; then take a little moss, and tie it pretty tight round, about an inch above the wounded part, and increase it to the size of an egg, and so proceed with the rest of the shoots. After they are all done, remove the plant into a gentle *hot-bed* or pit, or into a greenhouse, and shade them until they begin to grow; sprinkle them with water once or twice each day, to prevent the moss becoming dry; it will, too, encourage the shoots to grow. After they begin to grow, the moss may be unloosed, and laid loosely on again for a few days longer, when it may be taken away altogether. If any of the shoots appear to be twitched, they may be unloosed and tied over again rather slacker: it will require great care, as they are very tender for a long time after they are united, and are very easily broken off. It will be necessary, too, to put a support to each shoot, to prevent the wind, or anything else breaking them off; finally, remove them to the greenhouse, and attend to them the same as the other plants, their beauty and striking contrast will be the admiration of all who see them.

MANAGEMENT OF PLANTS IN DWELLING-ROOM WINDOWS, ETC.

BY MR. GEORGE ELLIOTT, OF MALVERN.

A GREAT deal has been said and written about plants in windows, some asserting their tendency to injure health, and others the contrary. There is one point, however, in which I think all will agree, and that is, their beautiful appearance. Whether in the splendid halls and drawing-rooms of the wealthy, or in the humble cottage of the poor, there can be but one opinion respecting their appearance. What artificial splendour can compete with a number of handsome flowering plants in the windows of our rooms? Certainly none. Their beautiful green leaves, contrasted with their blossoms of various forms and colours, present an appearance altogether beyond the reach of art; and during the winter months, when the ground is covered with snow, and the gardens present an appearance more of desolation than beauty, the trees all leafless, and the flowers cut down by the frost, *then* what a feast is presented by plants blooming away in your house (heedless of the chilling blasts without), enlivening the dreariness of winter, spreading an odoriferous perfume through your apartments, and rivalling in beauty many of those tender kinds, which only delight us with their fragrant flowers during the genial summer weather, not able to bear up against the chilling and frosty air of winter. With regard to the choice of flowers for windows, of course, that is a matter of taste; but for the cottager, I think, he will find the Scarlet and other Pelargoniums, Begonia, Cineraria, Crassula, Acacia, Corrœa, Camellia, Heliotrope, Canna, Salvia, Azalea, Myrtle, Lobelia, Nerium, Coronilla, Hoya, Gloxinia, Cytisus, Fuchsia, Hydrangea, Chinese Primroses, Cactus speciosa, and Monthly Roses, to be not only cheap but elegant acquisitions to his apartments. We will now proceed to consider the principal question on the subject, viz.:—Are they beneficial or injurious to health? And I shall endeavour to show clearly and upon philosophical principles, that in moderate quantities they are decidedly healthy. Our atmosphere is simply a mixture of oxygen, or vital air (so called, because no animal can live without it), and nitrogen (called azotic gas, because it would immediately deprive any one of life who was to breathe it), with an exceedingly small quantity (about 1 part in 1000) of carbonic acid gas, which is also poisonous, and, of course, several adventitious substances, such as watery vapour, etc. Now, in breathing this atmospheric air, man and all other animals retain the oxygen which enters into the blood, and return the nitrogen, which being lighter than the air ascends, and waits for fresh combinations. Thus man deprives the air of its constituent which supports life, and returns the poisonous part; on the contrary, plants (not flowers only, but plants generally) give out during the day a large quantity of oxygen, which combining with the nitrogen, which man exhales, preserves the equilibrium, and re-forms atmospheric air. Here, then, we see that "the plant purifies what the animal had poisoned." The loss of the vast quantity of oxygen which is absorbed by the breathing of animals, would soon render the air totally unfit for our use, if the Almighty Framer of the universe had not, in his infinite wisdom, appointed an antidote in the vegetable creation. This is, I think, a sufficient evidence that plants in rooms are decidedly healthy; but when I state this, I must also assert that in bedrooms they are exceedingly deleterious, as during the *night* many plants gixe out carbon instead of oxygen, and by that means, instead of purifying the air, help to poison it. The fact that man exhales air unfit for being re-breathed is too clear, and too generally admitted, to need an experiment; but perhaps it may be as well to mention one—as some readers of this article may be sceptical on this point—to show that during the day plants give out oxygen; I therefore select the following from Parke's "Rudiments of Chemistry:"—"Invert a glass bell full of water in a flat dish of water, and introduce leaves under it. Expose the apparatus to the sun's rays, and very pure oxygen gas will be disengaged, which will displace the water in the glass, and occupy its place. In like manner, a sprig of mint corked in a small portion of carbonic acid gas, will render it capable of supporting life." Thinking, as one of our present authors writes, that "Floriculture is amongst the most innocent and humanising of all pleasures," and that "everything which tends to diffuse such pursuits amongst those who have too few amusements, is a point gained for happiness and for virtue," I consider it a duty which I, as a Floriculturist, owe to my favourite recreation, to endeavour to remove that prejudice which so generally exists against flowers in windows, by showing that (except in sleeping apartments) it is destitute of foundation; and further, by proving, on chemical and philosophical principles, that they are not only interesting and beautiful, but actually conducive to the salubrity of the atmosphere.

MANAGEMENT OF THE BOUVARDIA TRIPHYLLA.

BY A NOBLEMAN'S FLOWER GARDENER.

About the middle of April, collect all the Bouvardias together from the places where they have been kept through the dormant season: some amongst the orange tubs, others in cold frames, and others under the stage of the greenhouse.

Turn them all out of their pots, and shake the soil completely from the roots; thin off most of the large roots, yet retain as many of the fine fibrous ones as possible. At the same time, cut down all the former year's shoots, retaining only two, three, or four eyes on each, according to the age or strength of the plant.

Plant them in pots suitable to the size of the plants, taking care never to overpot them, nor to cramp the roots by confinement.

When potted, water them to settle the earth about their roots, and place them in a cold frame, covered with hay and mats at night; keep the lights close during the night, and even in the day (unless the sun be very strong upon them), till they begin to grow; then give them portions of air, according to the day, and their advance in growth. Subsequently, leave the lights off through the day, and lastly, do not put them on at night.

In about a week after they have been thus exposed, plant them finally out for the season, either in clumps by themselves, or distributed among other plants, after which they are soon in fine bloom, and continue to flower till Christmas. By the autumn, some of the year's shoots will have attained nearly a yard in length, and will be crowned with fine luxuriant clusters of splendid trumpet-like flowers.

As soon as frost is apprehended, take up the plants with balls of earth attached to their roots, disturbing the young growing fibres as little as possible, and place them carefully in pots that will admit of a little good mellow soil under the ball, and around it.

When they are thus carefully replaced in pots, and watered so as to settle the mould, those which are in luxuriant bloom may be mixed amongst the greenhouse plants, where they will make a splendid appearance till January. I have bushy plants two feet and upwards high, and as much across, covered with a profusion of their rich red and scarlet trumpet-like blossoms.

When the plants begin to shed their leaves, and the flowers are nearly gone, put them out of sight, as mentioned above, until April.

This treatment may be continued with the same plants for many years; for the application of fresh soil, the trimming of the old roots, the great luxuriance gained by growing, without confinement of their roots, in congenial soil in summer, renovate the plants, which could not be effected by any other means of culture.

Bouvardias are propagated by cuttings of the roots, which are managed as follows:—fill some large fruiting pine pots with good, fresh, mellow loam, well blended with either thoroughly rotten dung or vegetable mould.

Plant the roots all over the pot, beginning in a circle round the outside, opening the soil and planting them with the finger, continuing to fill up one circle within another, till it is finished in the centre of the pot, leaving no more of the root visible above the surface than just at the top.

When planted, water, and place them in a hothouse, where the temperature at night is kept between 60 and 70 degrees Fahrenheit.

As soon as the shoots have grown to between four and five inches high, transplant the plants singly into pots of a small size, and by degrees harden them, after they are established.

When they have made some progress after this transplanting, plant them out into a bed, four feet wide; place the plants in rows, eight inches apart, and four inches from plant to plant in the rows, where, if the soil be good, they will soon be in flower. Pot them again before frost, and treat them as directed for the older plants.

POT-CULTURE OF THE FOLLOWING BULBS, EITHER FOR FLOWERING IN THE POTS OR TURNING OUT IN THE BORDERS EARLY IN THE SPRING.—In the month of October, examine the roots and separate the offsets from them, pot them in light turfy loam and sand, with good drainage, putting a layer of well-rotted cow-dung at the bottom of the pots the strong-growing varieties of Gladioli are to be planted in. Prepare a bed of dry old tan and litter from the stable and place a frame on it, in which plunge the pots, the Gladioli at the back, and Ixias, Sparaxis, Tritonias, Babianas, Oxalis, Lachenalias, etc., in gradation to the front; give plenty of air in fine weather, and withhold water until the bulbs have made root and the leaves appear, and it must then be carefully given when there is no danger of frost. Should the winter prove very severe, bank the frame up well with dung or litter, and cover the lights with straw or bass mats. Under this management the Sparaxis will flower in April, the Ixias, Babianas, Gladioli, and Tritonias succeeding one another. After the flowering is past, continue the watering, to perfect the growth of the bulbs, and gradually withhold it as the leaves die away and they ripen. Bag the roots, place them on a dry shelf, and they will be ready to replant the following season.

NOTES ON NEW AND SELECT PLANTS.

1. **Crescentia macrophylla.** Nat. Ord., *Crescentiaceæ.* Syn., *Ferdinandea superba.*—Its native country is unknown; but from its habit we should judge it to be Tropical America. The largest specimen of this plant in England is at the Royal Gardens of Kew, which has attained the height of seven feet; but at the Botanic Garden at Berlin there are some twelve feet high. It has very fine large foliage, measuring fifteen inches in length, and about three inches in breadth. The flowers are produced out of the old wood in pairs, each one about an inch and a half across the mouth, and about two inches long, of a pale yellowish-green. (*Bot. Mag*, 4822.)

2. **Oncidium incurvum.** Nat. Ord., *Orchideæ*—This Orchid was first introduced to our stoves by Mr. George Barker of Birmingham; but since it has been sent from Mexico by P. W. Doyle, Esq., to his brother Colonel North, in whose stove it flowered in October, 1854. Its flowers are produced in branching racemes, white, blotched with pinkish-purple. (*Bot. Mag.* 4824.)

3. **Trichodesma Zeylanicum.** Nat. Ord., *Boragineæ.* Syn., *Borago Zeylanica.*—A native of Western Australia, introduced by Mr. Drummond, who speaks of it in his journal as follows:—"A fine plant belonging to *Asperifoliæ* appears in great abundance and perfection on the sand banks in the sheltered bed of the Irwin river. It grows to be six or eight feet high, with numerous branches, which terminate in panicles of large light blue, borage-like flowers. The plant is a perennial, with a sort of woody stem, five or six inches in diameter (circumference?) near the ground. It rises readily from seed, and would be a great ornament to the gardens and shrubberies of Perth." Only a few plants have been reared in pots in a warm greenhouse, of comparatively small size. Probably it will flourish in the open air in summer. (*Bot. Mag.* 4820.)

4. **Nymphæa Amazonum.** Nat. Ord., *Nymphæaceæ.* Syn., *Nymphæa fœtida.*—This species was sent by W. T. March, Esq., of Spanish Town, Jamaica, to Mr. Moore, of the Botanic Gardens at Dublin, under the name of *N. nocturna*, but Sir W. Hooker has identified it as *N. Amazonum.* The flowers are very fragrant, of a yellowish-white, about four inches across. The sepals are of a pale yellowish-green. It opens its blossoms about eight or nine in the evening. The foliage is not very large, each leaf being about four inches across, bright green, under side purple. (*Bot. Mag.* 4823.)

5. **Epipogon Gmelini.** Nat. Ord., *Orchideæ.* Syn., *Satyrium Epipogium.*—A new British plant, discovered on the 9th of September, 1854, by Mrs. Anderton Smith, at Tedstone Delamere, Herefordshire. "All the specimens were found at the foot of a very steep woody bank, close to a brook; the soil very wet and stiff." It having remained so long undiscovered in England, and even still considered rare on the Continent, is no doubt because of its having no foliage

and no very conspicuous colours in the flowers. It was first known as a Siberian plant a little more than a century ago, and figured by Gmelin. It is observed by M. Schlauter, "that the plant does not appear annually in the same spot, but every two years—the swollen branches of the root eventually becoming new flower-stems, and requiring two years to be perfected." It grows about nine inches high. Flowers of a pale sulphur yellow, with small red spots, four or five in a raceme. (*Bot. Mag*. 4821.)

6. AZALEA INDICA VITTATA PUNCTATA. Nat. Ord., *Ericaceæ*. Mr. Fortune sent this handsome species from China to Messrs. Standish and Noble of Bagshot, in whose establishment it has bloomed during the last season. It is of medium habit, grows freely, and blooms profusely. The flowers are large, white, with delicate streaks of rose; the three upper petals most numerously spotted with large deep rose spots. It is a very showy and handsome plant, but the flowers are not quite so good in form as some of the hybrid varieties; it should, nevertheless, be in all collections of this most showy genus. (*L'Illus. Hort*. pl. 20.)

7. PELARGONIUM HEDERÆFOLIUM, var., *Kermesinum*. Nat. Ord., *Geraniaceæ*.—A handsome variety belonging to the *Ivy-leaved* section. The flowers are somewhat the same in size and shape of the old pink variety, but of a rosy crimson, and produced in *abundance*. It is a good bedder, and when placed in contrast with the white and pink, will have a pleasing effect. The foliage is of a rich green. (*L'Illus. Hort*. pl. 22.)

8. FRANCISCEA MACRANTHA. Nat. Ord., *Scrophulariaceæ*.—This noble and splendid species was first introduced by M. Mathieu Libon, collector to M. De Jonghe of Brussels, notwithstanding the researches of many other eminent collectors who had preceded him in the same country, who doubtless never met with it in flower. It was discovered growing in a large ravine, near Villa Franca, in the province of St. Paul, Brazil. It is very vigorous, and fine in foliage and flower. The flowers are produced in terminal heads of from four to six in each; a single flower being three inches across, of a pale rosy-purple. It is exceedingly worthy of cultivation. (*L'Illus. Hort*. pl. 24.)

9. ISMENE AMANCAES. Nat. Ord., *Amaryllidaceæ*. Syn., *Pancratium amancaes*.- A stove bulb, introduced as far back as 1804 from Peru. It is remarkable for its powerful and delicious odour; its flowers are large, about three inches across, pale yellow, with six green stripes. (*L'Illus. Hort*. pl. 28.)

10. CHORIZEMA SUPERBUM. Nat. Ord., *Fabaceæ*.—Mr. Cunningham, nurseryman, Edinburgh, received seeds of this beautiful species from New Holland. It is remarkable for the length and abundance of its handsome flowers; it is somewhat similar in flower to *C. cordatum*, but far superior in profusion. The wings are deep orange, keel, rosy red; each raceme is about six inches in length. It is a great acquisition to the genus. (*L'Illus. Hort*. pl. 29.)

11. LÆLIA PURPURATA. Nat. Ord., *Orchidaceæ*.—This magnificent

species was first introduced by M. François De Vos, the collector for M. Ambroise Verschaffelt of Ghent, Belgium, who received it in 1847 from the island of St. Catherine, Brazil, and Messrs. Backhouse of York bloomed and exhibited it at one of the Horticultural Society's meetings in 1852. The flowers are about eight inches across; the petals and sepals are white, the former being broad. The labellum or lip is four inches long, and rolled round the column, forming a tube, which, at its terminating limb, is three inches across. The lip is yellow in the centre, veined with crimson; the limb is of the richest velvety purple. A most magnificent Orchid, meriting universal cultivation. (*L'Illus. Hort.*)

12. QUERCUS PEDUNCULATA (?), var. *filicifolia*. Nat. Ord., *Cupuliferæ*.—Our parks and gardens have recently been enriched by an extremely remarkable variety of oak, with leaves of great length, very much laciniated; altogether, it would make a singular ornament. It was procured almost at the same time by Messrs. A Topf, nurserymen, of Erfurt, and James Booth & Co., at Hamburg. They say that it was discovered on the mountains of Southern Germany. It differs exceedingly from the old fern-leaved oak, *Q. heterophylla laciniata*, having a much finer and more hairy foliage. (*L'Illus. Hort.*)

13. LOBELIA GHIESBREGHTII. Nat. Ord., *Lobeliaceæ*.—In June a new species of Lobelia was brought under our notice by Mr. A. Van Geert of Ghent, who cultivated it under the name here given. It is a native of Mexico, where it was found in the province of Michoacan by M. Ghiesbreght, who sent seeds last year to M. Linden. It is a half-shrubby growing plant of curious habit. The flowers are numerous, of a rosy-lilac, with a white eye, disposed in terminal branching racemes. The tube of the flower is about two inches long; the petals are narrow. It is very distinct, and will bear the open air in summer. (*L'Illus. Hort.* pl. 34.)

14. LACÆNA BICOLOR, var. *glabrata*. Nat. Ord., *Orchidaceæ*.—This species was discovered by Mr. Hartweg, on the mountains of Salama, in the province of Vera-Paz, and near the villages of Seniel and Quezaltenangs, where it grows on the rocks, at an elevation of 7000 feet above the sea. It is a pretty plant, and merits the attention of amateurs of this class of plants. The flowers are produced in a raceme, the petals and calyx are pale sulphur, and the labellum dark purple edged with white, each one about an inch and a half across. (*L'Illus. Hort.* pl. 33.)

15. GLOXINIA PRINCESSE DE PRUSSE. Nat. Ord., *Gesneriaceæ*.—A very distinct and truly beautiful variety of the habit of *G. Fyfiana*. It was raised by M. F. A. Haage, nurseryman, of Erfurt, who has paid considerable attention to the culture and hybridization of the Gloxinia. The flowers are pure white, with a deep crimson throat; they are *erect*. The foliage is distinctly veined. It is a very beautiful variety, and should be extensively cultivated. (*L'Illus. Hort.* pl. 16.)

16. RHODODENDRON ARBOREUM, var. *speciosum*. Nat. Ord., *Ericaceæ*.—M. A. Verschaffelt has occupied himself for a length of

time in cultivating this beautiful genus of plants with great success. The present is a hybrid raised between *R. Woolerii* and *R. cinnamomeum*. It first flowered in 1851; it is a flower of the first order. The flowers are pure white, densely spotted in all the petals with rose and crimson; each flower is two inches across, and forming a head of eight or nine inches in diameter. A truly splendid variety, and ought to be in every collection. (*L'Illus. Hort.* pl. 1.)

17. MONOCHÆTUM UMBELLATUM. Nat. Ord., *Melastomaceæ.*—The prettiest of the genus, originally discovered on the borders of the Orinoco, by MM. Humboldt and Bonpland, but we owe its re-discovery to MM. Funk and Linden, in 1842. "It grows," says M. Linden, "on the temperate side of the chain of mountains which border the coast of Venezuela, at an altitude of 5000 feet above the sea." It was introduced by MM. Funk and Schlim, in 1846. The flowers are bright rose, about three inches in diameter, produced in umbels of from six to eight in each. It is exceedingly showy, and merits a place in every stove. (*L'Illus. Hort.* pl. 11.)

18. AZALEA BEALII (HYBRIDA?). Nat. Ord., *Ericaceæ.*—Mr. Fortune found this Azalea growing in the gardens of the Chinese, from whence he introduced it to the nursery of Messrs. Standish and Noble of Bagshot. It is thought to be a hybrid; its blossoms are produced in great abundance, and are of a pure white, striped with a beautiful rose. It is remarkably handsome and distinct. (*L'Illus. Hort.* pl. 8.)

19. BERBERIS NEUBERTI. Nat. Ord., *Berberidaceæ.*—This Berberis was received in 1850, by M. Bauman, nurseryman, of Bolwiller, France. It is evidently a cross between *B. atropurpurea* and *B. aquifolia*. The foliage is very spinous and glabrous; it is of distinct habit, and very fine. (*L'Illus. Hort.*)

20. BLANDFORDIA FLAMMEA. Nat. Ord., *Asphodelæa.*—Syn. *Tritoma flammea.*—All the Blandfordias are handsome, and the species now under notice is the most beautiful and distinct. It appears to have been introduced from Hunter's River to Sydney. Mr. Backhouse gathered specimens of it at Port Macquarrie, and Mr. Bidwell at Wide Bay, in North-east Australia. The leaves are long and narrow, much like those of the old plant "Kings-speare." The flower-stalk rises from the centre, two to three feet high, terminating in a raceme of from eight to fifteen, or more, beautiful *bell-shaped, drooping flowers.* Each blossom is about two and a half inches long, and one and a half across the mouth; of a light scarlet, with a broad margin of rich orange around the six-parted mouth. It will succeed well in the open ground in summer, but does best when treated as a greenhouse plant. It is a charming species, and has bloomed freely at the Dublin Botanic Garden. (*Bot. Mag.* 4819.)

MISCELLANEOUS.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY'S EXHIBITION FOR 1855.—This celebrated Show was held at the Manor Rooms, West Hackney, on November 21st, and was of first-rate excellence, superior to any of its predecessors.

Six best Specimens of the Large-flowered Section.—1st Prize (a silver cup), awarded to Mr. Gifkins, gardener to P. Johnson, Esq., for the following six varieties:—Mount Etna, Queen of England, Christine, Defiance, Madame Camerson, and Annie Salter. 2nd, to Mr. Holmes of Hackney, for Defiance, Mount Etna, Christine, Annie Salter, Chevalier Dumage, and Pilot. In the 1st, the Madame Camerson, was five feet across (diameter), and Christine, in the 2nd, was six feet in diameter. All the above were in fine bloom, and the Annie Salter in the 1st collection was considered the most *superb specimen* of the whole exhibition.

Six best Pompone (or Minima).—1st Prize, to Mr. Scruby, for Madame Rousselon, Dame Blanche, Modele, Drine Drine, Cedo Nulli, and Autumnum. 2nd, to Mr. Goodenough, for Modele, Cedo Nulli, Autumnum, Solfaterre, Surprise, and Ninon.

Cut Flowers of Large-flowered Section.—There were nine collections of *Twenty-four Blooms.* 1st Prize (silver cup), to Mr. G. Taylor of Hackney for, Racine, Queen of England, Madame Andry, Themis, Campestroni, Nonpareil, Duke, Defiance, Beauty, Rolla, Plutus, Trilby. Aregina, Formosum, Rosa Mystica, Cyclops. Two coloured incurved, Dupont de l'Eure, Versailles Defiance, Golden Cluster, Arc en Ciel, Gem, Leon Lequay, Annie Salter. The other eight collections contained fine flowers, but consisted (nearly entire) of the above superb varieties, we therefore omit a repetition of the names.

Twelve Blooms.—1st Prize (silver cup), to Mr. Hutton, for Queen of England, Nonpareil, Defiance, Dupont de l'Eure, Formosum, Rosa Mystica, Strafford, Gem, Plutus, Campestroni, Aregina, and Themis. There were thirteen other collections shown in this class.

Six Blooms.—1st Prize, to Mr. E. Sanderson, for Plutus, Queen of England, Gem, Themis, Leon Lequay, and Rosa Mystica. There were thirteen other collections shown in this class.

Six Anemone-flowered.—1st. Prize, to Mr. G. Taylor, for Nancy de Sermet, Madame Godereau, Marguerite d'Anjou, Fleur de Marie, Marguerite de York, and Gluck. There were six other collections shown in this class.

In the class for persons who had not previously obtained a prize, there were four collections of *Six Blooms* shown. 1st Prize, to Mr. James Stapleton of Stamford Hill, for Rosa Mystica, Dupont de l'Eure, Queen of England, Nonpareil, Themis, and Beauty.

Many of the flowers shown were as large as medium-sized

Dahlia blooms, five inches, or upwards, across, and of a full double. The varieties of the large-flowered class which were most numerous in the winning collections were, Queen of England, Themis, Leon Lequay, Dupont de l'Eure, Nonpareil, Defiance, Plutus, Rosa Mystica, Beauty, Annie Salter, Christine, Versailles Defiance, Racine, Madame Andry, Mount Etna, Gem, Madame Camerson, and Formosum. The beauty and excellence of the flowers exhibited could only be duly estimated but by viewing them congregated together; they were indeed magnificent, highly creditable to the skill of the growers.

The Society deserves the liberal patronage and *cash support* of all lovers of fine flowers in and around the metropolis.

BRIEF REMARKS.

PROPAGATION OF HOLLYHOCKS.—Early in November is the best time to obtain cuttings from the crown of the roots, they strike better then than at any other period; put one cutting into each sixty-sized pot, in a light sandy soil, and place them where there is a *gentle* bottom heat, and in three weeks they will be rooted; then remove them into a cold frame, where protection can be given from frost, but have plenty of air on all other occasions; then turn them out into the open ground about the middle of March, and give a liberal supply of water in proportion to growth. If summer-struck cuttings are now (November) in small pots, put them in one or two size larger, to prevent them pushing blooming stems, and give them abundance of air.—(*A London Exhibitor.*)

CHRYSANTHEMUMS (Pompone or Minima varieties).—Mr. Robinson, gardener to J. Simpson, Esq., Thames Bank, Pimlico, London, is perhaps the most successful cultivator of this section of Chrysanthemums we have in Great Britain. His plants are remarkable for their *dwarf* bushy character, most of them being from a foot to eighteen inches high, and from eighteen to twenty-four across, producing a *vast profusion* of bloom.

The soil which Mr. Robinson uses is one-half rich turfy loam, one-fourth horse and cow manure, in equal parts, well decomposed, and a small portion of silver sand. In the second week in April he fills a sufficient number of thumb-pots with light rich soil, takes off strong healthy cuttings, and places *one* in each pot, and plunges the pots in a frame where they have a brisk bottom heat, keeping them *close*, and frequently sprinkling them overhead, so as to prevent them drooping. When it appears they have just struck root, air is proportionately admitted. When sufficiently rooted he shifts them into four-inch pots, giving them bottom heat, and kept close for a week; then air is *freely* admitted, to keep the plants robust, and when well rooted, again he shifts them into five-inch pots, and fully exposes them to sun and air. When the plants are well rooted, he cuts back the tops to about three or four inches from the soil, which induces the pushing forth of side shoots, and forms them into *bushy* plants. When the new shoots are pushed an inch or so, he repots into six or eight inch pots, in which the plants bloom. When well established, he gives weak manure-water twice a week, and the pots are plunged half their depth in the open ground, where they remain till the flower-buds are well formed, nearly showing the petals, and then taking them under glass in pits, frames, or houses. It often happens that at this stage *green fly* attacks Chrysanthemums, Mr. Robinson has his stock of plants fumigated twice with tobacco. The blossoms expand fully and freely, and the plants exhibit the *ne plus ultra* of excellent management during October, November, and December.

After taking off cuttings in April he turns out the old plants into the open ground or bed, where they bloom beautifully, and are highly ornamental during autumn.

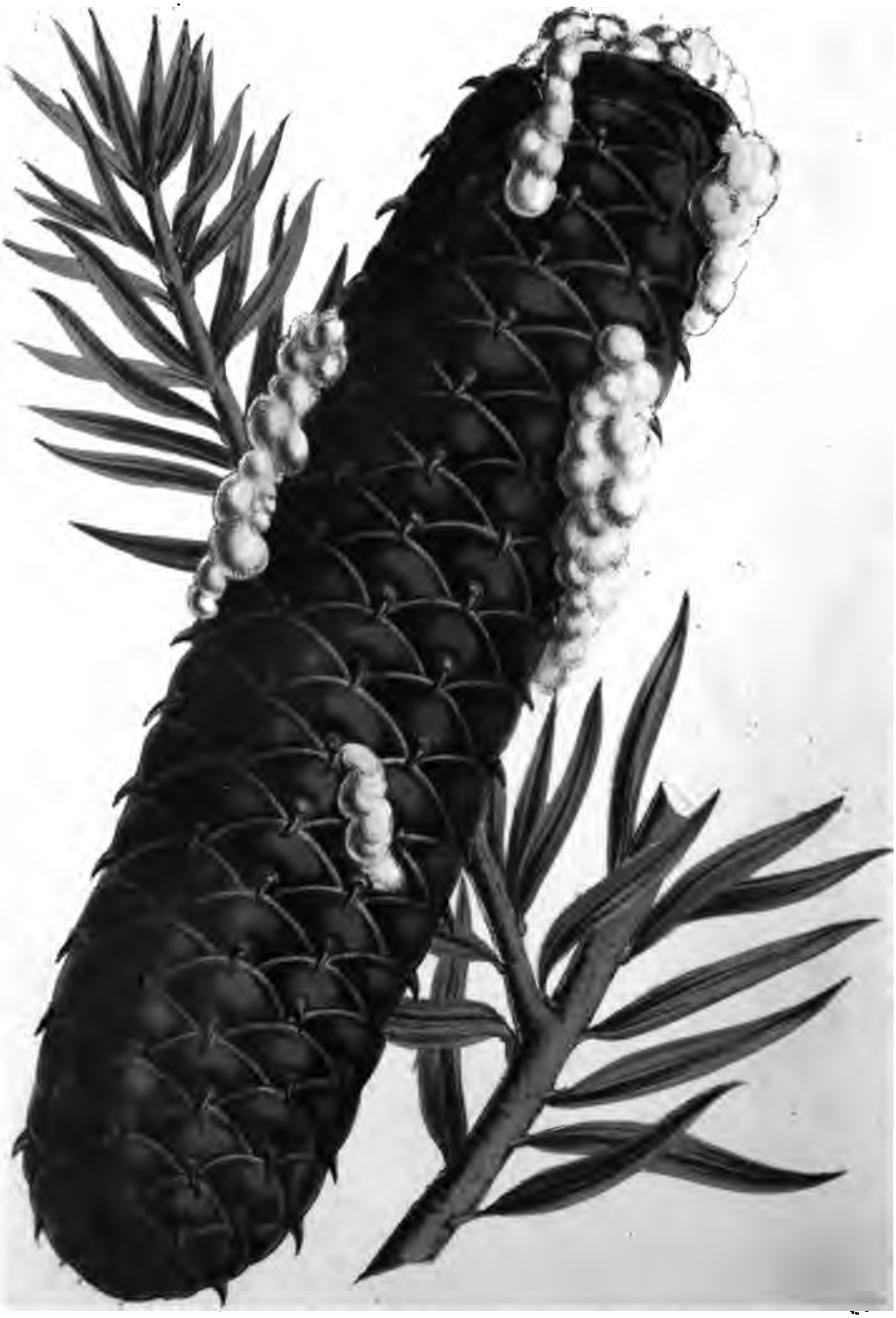
Chinese Primroses.—"I have a fine collection of these now beautifully in bloom, and nothing could possibly be more cheerful or delightful than their appearance is at this period of the year and during winter. They are not half so much grown as they deserve to be; the following is the method I pursue in their treatment, which may be useful to amateurs or others." Seeds may be sown in succession in May, June, and July, to furnish a supply throughout winter and spring. Let them be sown in light sandy soil, and placed in a moderate hotbed frame, or an ordinary greenhouse will do; as soon as the plants are large enough, prick off into either pots or pans, and place them near the glass, to prevent them being drawn weakly. As soon as fit, pot them *singly* into thumb-pots, giving increased air; when established, place them in a cold frame, kept rather close at first; after, give more air, and shift progressively until they are in six-inch pots, or if required to have extra-sized plants, then into eight or ten inch ones. The soil must be gradually increased in its strength at each shift, until it is *equal* parts of loam, peat, and leaf-mould, mixed with a little sand and finely sifted charcoal. The pots must be well drained, as the plants require liberal waterings. They may remain in the frame until the approach of frost, and then be taken into the greenhouse. Those of the first sowing will be in bloom early in October; the second by Christmas; those of the third (or July sowing) should be *wintered* in five-inch pots, and any premature flower-stems appearing should be pinched out, also be finally repotted early in February. As there may be danger of the *collars* of the plants being affected by damp during dull weather in winter, they may be occasionally supplied with water from *below*. In this way, and by giving abundance of light, air, and water, handsome plants, with rich-coloured flowers, will be produced, which, mixed with a few common things, as Cyclamens, Tree Violets, Lily of the Valley, Crocuses, Snowdrops, and Winter Aconites, all easy of cultivation, would make a basket at any season fit for a drawing-room.—(*W. E.*, *Gardener's Chronicle.*)

FLORAL OPERATIONS FOR JANUARY.

Flower Garden.—*Annuals* sown in autumn must be kept free from fallen leaves or other litter, or will rot; and towards the end of the month, if fine, sow a few more either in small pots kept in a cool frame, or sow in the open ground in patches, covering deeper than done in spring. *Bulbs*, protect beds of, for if the embryo flowers, or leaves, even within the ground, be affected by frost, their blossoms will be defective. *Flower-beds* must have an addition of one-third of fresh loam, with some leaf-mould, or well-rotted manure; this will induce the plants to bloom more profusely. The upper part of the bed, in which robust-growing plants are to be, should always be richest, to encourage the plants to grow rapidly at first, and the bottom portion being poor, when the roots push into it, the growth of foliage will be checked, and the bloom will produce a finer display. *Dahlias*, to propagate early, put the roots into pots or beds, where bottom heat can be given immediately; the plants will be strong by the end of April. *Gladioluses*, —such as Gandavensis, Psittacinus, and their varieties; plant a few to succeed the autumn-planted, and do so in February, March, and April, and a bloom till November will be had. *Pinks* and *Pansies*, small sticks should be pricked among the shoots to prevent the wind twisting the plant off. Let the soil be pressed closely round the main stem. A low hedge of fir, or yew branches pricked in at the edge of the bed will check strong winds. Those in pots give plenty of air. *Hares* and *rabbits* are enemies to Pinks and Carnations; if a good sprinkling of soot over the foliage be applied, the plants may be saved. *Carnations*, *Auriculas*, etc., in pots, must have all dry air allowed, and save them from frost and excess of water. The like attention must be paid to all tender or half-hardy plants, in pots or frames; guard against wet, and remove decayed leaves. Throw out the soil where the *Ranunculus* and *Anemone* bed is to be, half a yard deep, so that it may be sweetened prior to putting in the compost in February. *Lobelias*, the tall section, must be kept from frost and nearly dry. *Roses* and *Hollyhocks* plant as soon as possible. *Auricula* and *Polyanthus* seed sow in pots, and place them in a cool frame. *Shrubs*, layers of most kinds may now be made, and cuttings of *Privet*, also all *deciduous shrubs*, may be put in: they will succeed well if put in firmly, and each cutting be cut off close below a bud. Prune *Roses*, protect the heads of tender ones, and if they have their heads washed over with soot and lime liquid, it will kill moss and insects, and promote the health of the plants. *Tulips*, *Hyacinths*, etc., be careful to have the soil closed well around the leaves of such as appear; mild weather will cause some to rise early, protect from frost, but remove the covering at all proper times. *Box*, edgings of it should always be made early in autumn, but if required *now* may be done. *Verbenas*, give all dry air, and have the soil barely moist; to propagate early, place some in moderate warmth; guard against green fly and mildew. If any *tender* plants be frozen, sprinkle them overhead with *cold* water, and place them in a cool shed from frost, but where they will be *gradually* thawed.

Greenhouse.—Except in very foggy weather, give all the air possible, especially where there are *Heaths*, *Epacris*, and *Azaleas*, and *New Holland* plants in general, that are not required to bloom early, and water the plants in the morning that the damp may be dried up soon; apply a little fire-heat occasionally to dry the house, often stir the surface-soil in pots. *Tropæolums*, the *tricolorum*, and other tuberous-rooted, must now be potted, in order to bloom well the coming season. *Fuchsias*, prune in, and repot the large plants required to bloom early; plants now put into higher temperature, will soon push shoots, and furnish a supply for striking, to form the new plants for 1855. *Tropæolum Lobbianum*, *Hookerianum*, and *Triomphe de Gand*, are fine blooming ornaments now. *Camellias*, the soil must be regularly moist, or the flower-buds will drop; give manure-water once or twice a week, thin the flower-buds, if now crowded. *Cinerarias*, watch for the enemy, *green fly;* fumigate immediately one is seen; repot such as require it: also pot off *Alstrœmerias*, *Ixias*, and *Oxalis*, with any other greenhouse bulbous-rooted plants, by the middle of the month. Sow seeds of tender annuals required to ornament the greenhouse early in summer. *Pelargoniums*, spread the branches to form the plant regularly in every part by duly tying them outwards, drawing some down to form it bushy to the rim of the pot. Fumigate the greenhouse stock of plants. *Azaleas*, place the plant of any it is desirable to increase in extra warmth, to induce an early growth, as cuttings strike much the best *early* in spring, rooting freely in silver sand and gentle bottom heat; the half-ripened new shoots are the best.

Forcing Stove, Frame, etc.—*Achimenes*, place some of them in heat, to bloom early. Give one good watering at first, and then just keep the soil moist till the plants are about an inch long; then pot singly, or a plant or two more in each pot. Also some *Gloxinias*, and *Gesnerias*, for early bloom; do not put them where they will have a strong bottom heat, for if their vegetation be hastened too rapidly, they will be likely to be destroyed. Sow seeds of *Stove-plants*, hard-shelled ones steep in water, heated to 180 degrees; let them remain till the water is cool, then sow. The following plants are excellent for winter blooming, and force well: *Scarlet Geraniums*, *Eranthemums*, *Justicias*, *Aphelandra*, *Poinsettia pulcherrima*, *Achimenes picta*, *Coronillas*, *Ribes*, *Lily of the valley*, *Violets*, *Cytisus*, *Cinerarias*, *Gesneria zebrina*, *Roses*, *Persian Lilacs*, *Chinese Primroses*, *Azaleas*, *Acacias*, *Sericographus*, *Pinks*, *Tree Carnations*, *Cactus*, aud Bulbous tribes. *Succulents* must have but little water. Sow seeds of *Cockscomb*, *Balsam*, *Globe Amaranthus*, *Salpiglossis*, *Brachycoma*, and *Chinese Primrose*, about the middle of the month, for early bloom. Also, repot *Amaryllis*, *Sprekelias*, etc. Cuttings of bedding plants may be put in, and if the old plants have not a supply, place some in higher heat to push them, such as *Fuchsias*, *Salvias*, *Heliotropes*, *Cupheas*, etc. *Bouvardias* increase best by cutting the roots into bits an inch long, and cover them half an inch with silver sand.



Abies Jezoensis.

The Floricultural Cabinet.

FEBRUARY, 1855.

ILLUSTRATIONS.

ABIES JEZOËNSIS.

In selecting subjects for our plates, we have always confined ourselves solely to such as were of superior merit, either for their peculiar beauty or highly ornamental character. The one we have given in our present number stands pre-eminent amongst the latter, not only for its elegance of form and stately structure, but also for its large and richly coloured cones, admirably adapting it for adorning the pleasure ground or park. This truly magnificent evergreen fir was introduced to this country by Mr. Fortune, who sent it to Messrs. Standish and Noble, of the Bagshot Nursery.

It is stated by Siebold to grow in the islands of Jezo and Krafto, in the empire of Japan. In its native habitat it attains the height of 100 feet. The wood, which is light and soft, is used by the natives of Japan to make arrows and domestic utensils. The foliage is of a vivid green, and it is said to remain upon the tree for a period of seven years. This tree furnished with cones, which are rather more than six inches in length, and when young are of a fine purple, forms a splendid object.

REMINISCENCES OF GARDENS.

BY RISCEMARA.

The eventful year 1854 has just closed, and yet Chrysanthemums, Roses, Evergreen Honeysuckles, Jasminum nudiflorum, Double White Stocks, Aconites, Hepaticas, Christmas Roses, Double Daisies, Coronilla glauca, Pansies, Virginian Stock, Primroses, Polyanthuses, the Mezereum, Arbutus, Lauristinus, and Tritoma media, now enliven my borders, making one think winter has departed: the almost entire absence of berries on trees usually loaded with them at this season is a remarkable feature in this vicinity. But my object in writing this sketch is to allude to rarer flowers. *Hippeastrum aulicum*, or Courtly Knight-Star Lily, greeted me early in last year; it had two stems, each bearing two flowers, and the four were open at the same time. One flower measured eight inches in length, and seven in breadth, and the rest appeared equally large; they were of a salmony-scarlet hue, with green centre and purple stamens, and remained many days in beauty. The same plant, to my surprise, flowered again in the autumn, but with only one stem.

I omitted in my last paper to insert an account of an *Hydrangea hortensis*, grown by a neighbour of mine, who takes particular pains in procuring and cultivating hardy perennials, so that his garden presents an interesting picture of a great variety of this class of plants, and is quite a study to inspect; so few of them being now grown, owing to the preference given to half-hardy showy flowers. This Hydrangea measured thirty-six feet round; he did not then count its blossoms, but has cut off, in one summer, eleven hundred heads, mostly from six to nine inches in diameter, and of a bright rose colour. My other omission was, the notice of a visit I paid to Bear Wood, in Berkshire, the property of the Walter family. The lofty but not modern conservatory had in it a very large specimen of the *Acrostichum alcicorne;* it stood in a stone tazza, on a pedestal distinct from the other plants, and, thus exhibited, had a truly imposing effect. This property was mostly heath, and when the plantations were well grown, they were thinned, and a large lake formed, grounds laid out, and, at a suitable distance, a handsome church erected, by a lady of the family, now deceased. But I was the most charmed with the ornamental water in the garden, belonging especially to the mistress of the mansion; it was tastefully edged with rockwork, had various indentations, and is decorated with rock plants. There was a romantic walk by the edge, the other side of which was backed by higher rockwork, and above this towered, from the outside, luxuriant *Rhododendrons* and as they were in full bloom, the scene appeared to great advantage. I hope the possessor of this valuable estate will take pleasure in it, and carry out further embellishments.

Last summer I revisited Somerleyton, near Lowestoft, the seat of the late M.P. for Norwich. In the extensive glass houses and on the glass-covered walls there was much to delight and instruct. *Conoclinium hyacinthinum*, with its light purple flowers, was new to me, also the *Impatiens Jerdoni; Ipomœa Horsfallii* showed its rich crimson and purple flowers, and the *Clerodendron* its magnificent scarlet ones. The *Gymnogramma chrysophylla* was well grown, also the delicate *Hoya bella*, which I would recommend, from experience, to every one having a greenhouse; it should be placed in the warmest part. *Tacsonia mollissima* presented its curious pink blossoms; *Torenia Asiatica* was trained in an elliptical shape, and being three feet high, its elegant flowers were conspicuously visible. But I must pass over the noble *Heaths*, *Geraniums*, etc., just glance at the *Fuchsias*, eleven feet high, *Dipladenias*, *Allamandas*, *Gloxinias*, *Begonias*, *etc., etc.*, and pause before the elegant ***Bletia Tankervilliæ***, a plant I have had some time, but cannot bloom it; long had it been familiar to me, from its beautiful representation in Thornton's Botany, a large folio work, famous in its day for its coloured plates. The flowers are suspended from the stem at short intervals, and resemble a pink Foxglove fading into white, with yellow throat, surrounded by five sharp-pointed sepals and petals, their interior being a purplish-cinnamon colour, and the exterior white. The ***Rhyncospermum Jasminioides*** also claimed my admiration. But how shall I describe the winter garden? It is a large space covered with glass, in a sort of oriental style; four hundred tons of iron, we were told, were consumed in its erection. The drawing-room opens into it, and when exhibited in winter, ladies are to enter it from the mansion, without experiencing any change of temperature; it was not quite completed, and deserves an enlarged description.

I must now transport my readers (if I am favoured with any) to Poole, where, at an Exhibition of Art and Industry, highly creditable to the neighbourhood, I first saw the *Campanula Vidalli;* its rich, waxy-like, white flowers hung in pendent bells from a stem about ten inches high. I knew it at once, from the representation of it in the FLORICULTURAL CABINET. I must not linger on the delightful coast scenery of Dorsetshire, its downs and heaths, the sylvan wonders of Studland, the gay garden at the Victoria Hotel, Swanage, or the fertile vale of Encombe, opening to the British Channel, and called, from its verdure, the "Golden Bowl," and in which is the favourite seat of the first Lord Eldon, but with the falling leaf contemplate, in a gentleman's grounds at Wisbech, the *Veronica Andersoni* blooming in the borders, its graceful spikes of white flowers shading into purple. In the conservatory, a beautiful pale yellow Justicia with fringed edges was in bloom, and I admired a plant, raised from seed, which had scarlet berries as large as a marble, surrounded at its base by pale green petals; its name was unknown. In the greenhouse of another gentleman there I counted thirty spikes of flowers on the *Salvia splendens;* its effect was beautiful, and reminded me that this bright plant, blooming so late in the year, was not sufficiently cultivated. The Duchess of Lancaster Fuchsia was also very flourishing, and is a great acquisition to this already numerous and interesting tribe.

MANAGEMENT OF GESNERIA ZEBRINA.

BY MR. W. S. PRESTOE, ROYAL GARDENS, KEW.

THIS truly beautiful stove plant is to be found in nearly every collection, yet rarely is it found grown to perfection. I have had plants from two to four feet high loaded with their brilliant orange flowers, and, in conjunction with the beautiful foliage which renders it so very attractive, there is scarcely a plant to equal it for ornament, particularly in the winter and spring months, if grown well. If the treatment is pursued that I herewith recommend, the cultivator will be rewarded with the desired success.

The tubers should be started into growth during the months of February, March, and April, from which circumstance the plants will supply a succession of flowers from the middle of September to the end of February. They should be started in pans containg a compost of leaf-mould, with a small portion of loam and a liberal sprinkling of silver sand. Pans are generally used, for convenience; but I have found them to succeed best when a single tuber is placed in a three-inch pot, as it does not disturb the young roots afterwards so much as when placed in pans, for even with the greatest care it sometimes happens that the young roots are broken.

When the plants have pushed about two inches they must be repotted into pots a size larger, allowing them plenty of drainage, with a little moss soil spread upon it, in order to keep the soil from washing down amongst the drainage. The soil this time should contain a little more loam than it had for starting them in. Particular care should be taken in watering, never allowing them to lack a due supply, neither should they be so watered as to sodden the soil.

When they have attained about four large leaves, they must be shifted into their final pots for blooming in, and if large specimens are required, there should be four plants placed in each ten-inch pot; if, however, they are not required so large, put two plants in an eight-inch pot, even one will make a beautiful show. The pots should not be too deep, for the roots like rather to spread than go downwards. The soil used at the final potting should consist of one part each of peat and loam, and two of silver sand. The compost must be pressed moderately firm, yet not as some gardeners do that I have seen, who press it as though it was never to be separated again, which is as great an error as it is to allow it to be without any pressing at all.

After the plants are well established, an occasional watering of liquid manure will very much contribute to promote their vigour, especially if sheep's dung be used for the purpose.

The temperature best suited for *Gesneria zebrina* is about sixty-five degrees during the day, and ninety at night, yet with *sun heat* it may be allowed to rise from seventy to seventy-five, but not more, if it can be avoided. The direct rays of the sun should also be guarded against during the growth of the plants, as it turns the leaves brown. The atmosphere should not be very moist, especially when in bloom, or the flowers will be injured, and care should also be taken not to allow them to stand in draught of the doorway of the house, or it is liable to cause the buds to fall off before expanding.

If the above directions are duly attended to, it will fully repay for the labour bestowed by a magnificent display of both beauty and ornament. When the flowers have begun to expand, the plants can be removed to a house of a drier atmosphere, where their charming flowers and foliage will fully display their beauties to advantage, and be the admiration of every beholder. Wherever the exotic beauties of Flora are specially required, there should these lovely and easily cultivated plants be introduced.

THE TALLOW TREE OF CHINA.

BY DR. MACGOWAN.

THE *Stillingia sebifera* is prized for the fatty matter which it yields; its leaves are employed as a black dye; its wood, being hard and durable, is used for printing blocks and various other articles; and, finally, the refuse of the nut is employed as fuel and manure.

It is chiefly cultivated in the provinces of Kiangsi, Kongnain, and Chehkiang. In some districts near Hangchan, the inhabitants defray all their taxes with its produce. It grows alike on low alluvial plains and on granite hills, on the rich mould at the margin of canals, and on the sandy sea-beach. The sandy estuary of Hangchan yields little else. Some of the trees at this place are known to be several hundred years old, and though prostrated, still send forth branches and bear fruit.

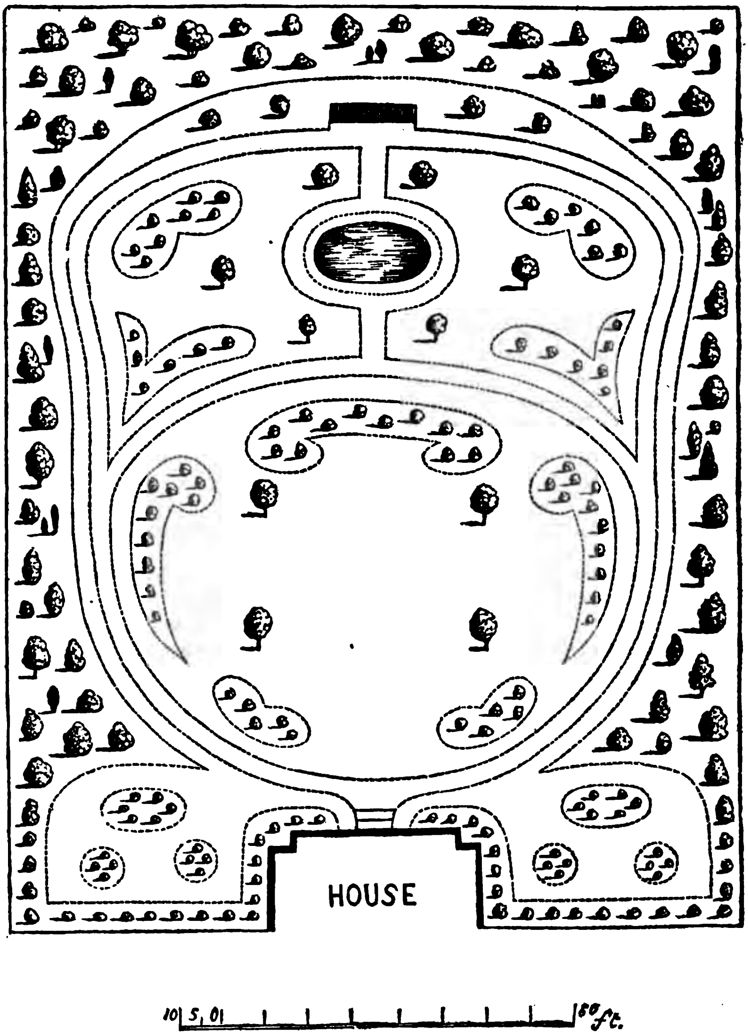
In mid-winter, when the seed-vessels are ripe, they are cut off with their twigs by a sharp crescentric knife, attached to the extremity of a long pole, which is held in the hand and pushed upwards against the twigs, removing at the same time such as are fruitless. The capsules are gently pounded in a mortar to loosen the seeds from their shells, from which they are separated by sifting. To facilitate the separation of the white sebaceous matter enveloping the seeds, they are steamed in tubs, having convex, open, wicker bottoms, placed over caldrons of boiling water. When thoroughly heated, they are reduced to a mash in the mortar, and thence transferred to bamboo sieves, kept at an uniform temperature over hot ashes. A single operation does not suffice to deprive them of all their tallow, the steaming and sifting is therefore repeated. The article thus procured becomes a solid mass on falling through the sieve, and to purify it, it is melted and formed into cakes for the press; these receive their form from bamboo hoops, a foot in diameter and three inches deep, which are laid on the ground, over a little straw. On being filled with the hot liquid, the ends of the straw beneath are drawn up and spread over the top, and when of sufficient consistence, are placed with their rings in the press. This latter apparatus, of the rudest description, is constructed of two large beams placed horizontally, so as to form a trough capable of containing about fifty of the rings with their sebaceous cakes; at one end it is closed, and at the other adapted for receiving wedges, which are successively driven into it by ponderous sledge-hammers wielded by athletic men. The tallow oozes in a melted state into a receptacle below, where it cools. It is again melted and poured into tubs smeared with mud, to prevent its adhering. It is now marketable, in masses of about eighty pounds each, hard, brittle, white, opaque, tasteless, and without the odour of animal tallow; under high pressure it scarcely stains bibulous paper; melts at 140 deg. Fah. It may be regarded as nearly pure stearine, the slight difference is doubtless owing to the admixture of oil expressed from the seed in the process just described. The seeds yield about eight per cent. of tallow, which sells for about five cents per pound.

The process for pressing the oil, which is carried on at the same time, remains to be noticed; it is contained in the kernel of the nut. The sebaceous matter, which lies between the shell and the husk, having been removed in the manner described, the kernel and the husk covering it are ground between two stones, which are heated, to prevent clogging from the sebaceous matter still adhering. The mass is then placed in a winnowing machine, precisely like those in use in western countries. The chaff being separated, exposes the white oleaginous kernels, which, after being stemmed, are placed in a mill to be mashed. This machine is formed of a circular stone groove, twelve feet in diameter, three inches deep, and about as many wide, into which a thick solid stone wheel, eight feet in diameter, tapering at the edge. is made to revolve perpendicularly by an ox harnessed to the outer end of its axle, the inner turning on a pivot in the centre of the machine. Under this ponderous weight the seeds are reduced to a mealy state, steamed in the tubs, formed into cakes, and pressed by wedges in the manner above described; the process of mashing, steaming, and pressing being repeated with the kernels likewise. The kernels yield above thirty per cent. of oil. It is called *Tsing-yu*, sells for about three cents per pound, answers well for lamps, though inferior for this purpose to some other vegetable oils in use. It is also employed for various purposes in the arts, and has a place in the Chinese Pharmacopœia, because of its quality of changing grey hair black, and other imaginary virtues.

Artificial illumination in China is generally procured by vegetable oils; but candles are also employed by those who can afford it. In religious ceremonies no other material is used. As no one ventures out after dark without a lantern, and as the gods cannot be acceptably worshipped without candles, the quantity consumed is very great. With an unimportant exception, the candles are always made of what I would designate as vegetable stearine. When the candles, which are made by dipping, are of the required diameter, they receive a final dip into a mixture of the same material and insect-wax, by which their consistency is preserved in the hottest weather. They are generally coloured red, which is done by throwing a minute quantity of alkanet root (*Anchusa tinctoria*), brought from Shantung, into the mixture. Verdigris is sometimes employed to dye them green.

DESIGN FOR A FLOWER GARDEN.

BY T. RUTGER, ESQ.



When an open lawn in front of a villa is preferred to a walk through the centre, or otherwise occupied by clumps, etc., the accompanying sketch may perhaps be acceptable to many; the delineation of which will I think explain itself, with the single observation, that the figure at the further end, opposite the pond, is intended to indicate a covered seat.

MOUTAN PŒONIES INTRODUCED FROM CHINA.

BY MESSRS. STANDISH AND NOBLE, BAGSHOT NURSERY.

Of the many remarkable plants imported by us from China, these, if judged by the size and beauty of their flowers, are among the most attractive. In the magnitude of their individual blossoms, in the diversity and richness of their colours, as well as in the profusion in which they are produced, nothing remains to be desired. The following sketch will afford an idea of their general characters. First, of colour: of white there are examples unsurpassed in intensity and clearness by any other flower, not excepting even the old double white Camellia. Of rose colours there are many shades, as well as of purples, and one rivalling the richness of the Tuscan rose. Then there is a pale blush, light red, deep red, salmon colour, primrose, peach colour, and crimson; with various other tints and combinations of these already mentioned. Some of the light-coloured ones have the bases of their petals deeply stained with red or purple; others are delicately shaded. Most of the flowers are very double; some are, however, only semi-double, the latter generally have the petals stained as described. In shape many are finely cupped; more resemble the finest rose, and others have anemone flowers. Of the last named, a white and a deep red are fine examples. In size, too, they are remarkable; some of the flowers produced last season, and from small plants, measured eight, ten, and twelve inches across.

Purpurea, fine rich purple.
Samarang, deep red, black base to the petals.
Glory of Shanghai, anemone-flowered, white.
Dr. Bowring, rose colour.
The Jewel of Chusan, white, base of the petals stained purple.
Beauty of Canton, light rosy, lilac-shaded.
Atrosanguinea, magnificent rich deep purple.
Vivid, bright red.
Ida, French white.
Pride of Hong Kong, clear rich light purple.
Osiris, Tuscan rose colour.
Salmonæa, salmon pink, shaded off to French white.
Sulphurea, primrose colour.
Robert Fortune, bright red, nearly scarlet.
The Emperor of China, rich rosy-red.
Hippolyte, rosy-lilac, shading off to light lilac.
Hebe, very clear white, base of the petals slightly stained with purple.
Pomona, white, base of the petals deep purple.
Berenice, a beautiful white.
Sir George Davis, rich rosy-lilac.
Dido, lilac, shaded with rose.
Cornelia, purple.
Atalanta, anemone-flowered, deep red.
Globosa, very large, white.
Ulysses, deep lilac, base of the petals darker.
Odorata rosæa, clear white, and beautifully scented.
Confucius, very bright red, almost scarlet.

Sir George Staunton, peach colour, shaded.

Zenobia, dark purple, tinted with blue.

Colonel Malcolm, very large, purple.

Captain Champion, rich cream colour, base of the petals stained with plum colour.

Reevesiana, deep rich rose-lake.

Lord Macartney, bright salmon, almost scarlet; a magnificent flower.

LIST OF SELECT AND NEW FLORISTS' FLOWERS.

Several of our correspondents having desired to be furnished with descriptive lists of some of the newest and best florists' flowers for the coming season, in compliance therewith we insert the following, which we are certain will prove true to character, and will be approved of. Want of space has prevented our giving more this month; in our next, however, we shall continue it.

Fuchsias.—*Duchess of Lancaster*, tube and sepals white, well reflexed; corolla rosy violet; fine and distinct. *Duke of Wellington* (*Moor's*), tube and sepals crimson, with a rosy violet corolla, superb shape. *Empress Eugenie*, tube and sepals of a rosy crimson outside; the sepals are shaded with violet on the inside, and are well reflexed; corolla pure white; new and distinct. *Florence Nightingale*, tube and sepals brilliant scarlet, finely reflexed; corolla pure white; new and lovely variety. *Galanthiflora pleno*, tube and sepals rich velvety scarlet-crimson; the corolla, which is double, is pure white, resembling a fine, large, double Snowdrop, from which circumstance it has received its name; a singularly pretty and distinct new variety. *Hendersonii*, tube and sepals deep crimson; corolla rich velvety purple; very handsome, and will be found a good companion to the last named. *Monarch*, sepals very broad, crimson, with a distinct, large, open corolla of blue violet. *Mrs. Story* (*Story's*), sepals long and wide, bright crimson, well reflexed; corolla clear white, of good substance; new. *Omega*, crimson tube and sepals; bright lilac corolla; good form, and very distinct. *Prince Albert* (*Banks's*), tube and sepals scarlet-crimson; corolla rich plum-violet. *Queen Victoria* (*Story's*), sepals wide, well reflexed, of a bright scarlet-crimson; corolla pure white. *Water Nymph*, a globular-shaped flower, of a bright scarlet-crimson, sepals thick, and stand well open; corolla fine clear white; distinct.

Cinerarias.—*Constellation*, pure white, with a deep well-defined edge of blue. *Empress Eugenie*, white ground, violet-crimson edging, and a purple disc; a fine flower. *Fascination*, a rich deep blue, with a white circle round the disc, fine form. *Lord Stamford*, pure white, with a beautiful porcelain blue edging. *Marguerite d'Anjou*, maroon crimson, with a deeper disc. *Mrs. Gerard Leigh*, pure white; with a rosy-purple edging, and a blue disc; fine. *Mrs. Rogers*, white, with a rosy-plum edging, dark disc; superb form. *Novelty*, damson-purple, with a light disc; large and fine. *Picturata*, pure white ground, with a broad edging of rosy-purple, and a lavender-coloured disc; extra fine. *Prince Arthur*, scarlet-crimson; a brilliant flower, very ornamental. *Prince of Prussia*, glossy sky-blue, with a white circle round the disc. *Scottish Chieftain*, white, with a deep plum-coloured edging and disc.

NOTES ON NEW AND SELECT PLANTS.

21. Dipladenia Harrisii. Nat. Ord, *Apocyneæ.*—A magnificent species, discovered by Mr. Purdie, who found it growing on the banks of the Caroni, and to the eastward of Mount Tamaria, in the island of Trinidad. Messrs. Veitch and Son have had the honour of first blooming it in Europe. Its discoverer thus speaks of it:—"This plant is not surpassed by any one of its congeners, whether we consider the size and beauty and fragrance of its flowers of metallic lustre, or its entire habit." The flowers are produced in axillary, terminal racemes, six to eight in each. Each blossom is from three to four inches across; clear yellow. The funnel-shaped tube is tinged externally with red streaks, and internally marked with the same colour, forming bifid rays. There are also five blotches of red on the corolla, around the throat. When in bud it is also exceedingly handsome, being large and drooping, with the red streaks blending beautifully into a clear golden yellow. The leaves are a foot in length, and about four or five inches in breadth. It is like its magnificent companion, *D. crassinoda*, a climber, and will soon become a universal favourite in our stoves. *(Bot. Mag.*, 4825.*)*

22. Hoya lacunosa. Nat. Ord. *Asclepideæ.* Syn. *Otostemma lacunosa.*—One of the numerous species of this genus which have been introduced from the islands of the Indian Archipelago. It was found growing on the trunks of trees in the island of Java. In habit it somewhat resembles the beautiful *H. bella*, but the flowers will not bear comparison; they are, however, produced freely, and sweet scented, of a greenish yellow. *(Bot. Mag.*, 4826.*)*

23. Escallonia pterocladon. Nat. Ord. *Saxifrageæ.*—Another reward of the exertions of that indefatigable collector, Mr. William Lobb, who sent it to Messrs. Veitch and Son, of Exeter, where it bloomed in the open border in July, 1854. It is "a decidedly hardy shrub, four or five feet high, an abundant bloomer, and fragrant." In foliage and habit it resembles the small-leaved Myrtle, and in flowers an Epacris. It appears to be an abundant bloomer, producing the flowers on the lower side and the entire length of the young wood, so that a whole branch may be considered a leafy raceme; white, tinged with rose; each flower half an inch long. The branches are red, and the foliage dark green. It inhabits Western Patagonia. *(Bot. Mag.*, 4827.*)*

24. Dipladenia acuminata. Nat. Ord. *Apocyneæ.*—Somewhat resembles the *D. crassinoda* and *D. splendens.* The blossoms are deep rose colour, streaked with red at the throat, four inches across

from point to point of the corolla. Throat yellow, gradually shading off to white; tube three inches long. Flowers produced in a subpaniculate raceme, seven or eight blossoms in each. Introduced from Brazil by Messrs. Veitch and Son. *(Bot. Mag.*, 4828.*)*

25. **Pentaraphia Cubensis.** Nat. Ord. *Gesneriaceæ.*—A Gesneriaceous shrub, a native of Cuba, West Indies; discovered by Mr. Linden, flourishing about St. Jago, Pinal de Nimarima, who introduced it to the English nurseries. The flowers are solitary, tubular, curved downwards, about two inches in length, red, with a yellow throat. The foliage resembles that of the *Myrica Gale.* It requires a warm greenhouse. *(Bot. Mag.*, 4829.*)*

26. **Catasetum incurvum.** Nat. Ord. *Orchideæ.*—Specimens of this orchid was sent to Dr. Lindley last summer by the Lord Bishop of Winchester, who purchased it at one of M. Warczewitz's sales by the name of *C. secundum.* The flowers are very large, being six inches in length from tip to tip of the sepals, and three in breadth; they are of a dull green, stained and streaked with purple. Dr. Lindley observes, "the great blossoms resembled nothing so much as some portentous arachnid seizing upon the shaggy ear of an unhappy animal, and turning it inside out in the struggle to grasp it, till a pair of horns, with which the arachnid seemed furnished, could be plunged into the ear, in order to hold it fast." *(Gard, Chron.*, 108.*)*

27. **Aquilegia Californica.** Nat. Ord. *Ranunculaceæ.*—Although this proves to be a mere variety of *A. canadense*, it has a more showy appearance in the border. The flowers are brighter, and have more yellow about them. It, however, resembles the old species in all its general habit. Mr. Hartweg sent it to the Horticultural Society from California. *(Gard. Chron.*, 107.*)*

28. **Cœlogyne plantaginea.** Nat. Ord. *Orchideæ.*—The Bishop of Winchester purchased this species at a sale at Messrs. Stevens. The flowers, which are produced in long pendulous racemes, are of a greenish yellow, with a white lip, streaked with brown. The pseudobulbs are six inches in length, and bear a pair of leaves about a foot in length. *(Gard. Chron.*, 109.*)*

NOTES FROM KEW.

BY MR. W. S. PRESTOE.

Dracæna terminalis. Nat. Ord. *Liliaceæ.*—A well-known and very ornamental stove tree, consequently it is a general favourite. The foliage is beautifully striped and shaded with crimson, brown, and green. The flowers, however, are not very attractive, being blush-white, borne in a small spike.

Achimenes picta, *var.* **Hillii.** Nat. Ord. *Gesneriaceæ.*—The foliage of this variety, although variegated, is not so distinct as *A. picta*, but the flowers are brighter orange. The inside of the corolla is clear yellow, beautifully spotted with scarlet. It is a most abundant bloomer, and merits extensive cultivation.

MANETTIA BICOLOR. Nat. Ord. *Cinchonaceæ.*—A plant well worth cultivation. It is a stove climber, succeeding best against a wire trellis. The leaves are ovate-lanceolate. The flowers are funnel-shaped, bright red and yellow.

IXORA ODORATA. Nat. Ord. *Cinchonaceæ.*—The foliage is remarkably fine, some of the leaves measuring nine inches in length, ovate. Flowers produced in large globular heads, each tubular-shaped blossom three and a half inches in length; the base of the tube pink, shading off to white at the upper extremity; terminal segments yellow. The flowers are very fragrant. Its large trusses have a very showy appearance in the stove. It deserves to be in every collection.

ALOE OBSCURA. Nat. Ord. *Liliaceæ.* Syn. *A. picta.*—The flowers are bright orange-red, produced in spikes. A very interesting succulent, which blooms at a time when flowers are most required. *A. pluridens* and *A. arborescens* are also of a bright orange-red, and are very attractive, particularly at this season of the year. Each of the above are free blooming.

STYPHELIA TUBIFLORA. Nat. Ord. *Epacridaceæ.*—An interesting greenhouse shrub, with beautiful scarlet tubular-shaped flowers, which are now very attractive.

EPACRIS. Nat. Ord. *Epacridaceæ.*—This most beautiful family are now in full bloom in the greenhouse. The undermentioned are what we possess, and are all well worth cultivating. Most of them are free growers, of neat habit, and profuse bloomers. *E. ardentissima,* dark ruby-red, free bloomer; *E. densiflora-incarnata,* bright pink; *E. elegantissima,* rose colour, tipped with white, free flowering; *E. grandiflora,* tube dark lake, pure white mouth, grows freely, and blooms profusely; *E. formosa,* light pink, abundant bloomer; *E. Willmoreana,* bright red, a very free-flowering variety; *E. nivalis grandiflora,* pure white; *E. hyacinthiflora,* large bright pink flowers, grows freely and blooms profusely, the best of the colour; *E. ochroleuca,* white, and rather a shy-flowering variety; *E. impressa alba,* white, free bloomer; *E. miniata,* light red, tipped with white, very free flowering; *E. Tauntoniensis,* fine bright red.

ERICA. Nat. Ord. *Ericaceæ.*—This is also a lovely genus, and most deservedly very popular. The first five have small flowers, but are nevertheless very beautiful. *E. Lambertiana rosea,* the flowers are a pretty rose colour; *E. scabriuscula,* white, very neat and pretty, free bloomer, and robust grower; *E. arbuscula,* flowers pink, borne in profusion; *E. gracilis autumnalis,* bright pink, good habit, very pretty; *E. gracilis vernalis,* similar to the last, but the flowers of a darker shade, and more in erect habit. *E. hyemalis,* tube pink, with a white tip, good habit, and free bloomer; *E. Westcotii,* pink, fine grower; *E. colorans superba,* tube pink, tipped with white, very neat; *E. cruenta,* long curved tube, ruby-red, robust habit; *E. transparens nova,* flowers bright flesh-colour, very pretty; *E. Petiveriana* *bicolor*, bright yellow, the base of the tube red, good habit; *E. mutabilis*, tube bright pink, with a beautiful carmine tip.

JASMINUM NUDIFLORUM. Nat. Ord. *Jasminaceæ*.—This beautiful Chinese shrub, which is nailed against a wall, is now in fine bloom in the open air. The bright yellow flowers have a very showy appearance. It deserves extensive cultivation.

CHIMONANTHUS FRAGRANS. Nat. Ord. *Calycanthaceæ*. Syn: *Calycanthus præcox*.—A beautiful companion to the last-named shrub, filling the air to a considerable distance with the delicious fragrance of its mulberry-coloured flowers. It succeeds well in the same situation as the *Jasminum nudiflorum*.

BEGONIA. Nat. Ord. *Begoniaceæ*.—There are several of these flourishing in the stove here. Amongst the best are—*B. marmorata* leaves heart-shaped, the upper side dark green, marbled with large creamy-white blotches; the under side rosy crimson. The stalks of both leaves and flowers are purplish-crimson. The upper side of the flowers are pale yellow, with fine red veins; on the lower side the veins are much broader and darker. This is one of the best of this extensive genus, and is highly entitled to a place in every stove. *B. frigida*, leaves heart-shaped, biserrate; ground-colour beautiful light green, veined with deep green; the footstalk semi-transparent, pale pink. The flowers are pure white, in trusses, well elevated above the handsome foliage, and form a pretty contrast, rendering it very attractive. It is a free grower, as well as a free bloomer. *B. hæmototricha*, leaves heart-shaped, lanceolate, hairy; flowers small, of a delicate pink. In addition to the above kinds, there are in bloom *B. incarnata*, *B. Prestoniensis*, and *B. Ingramii*, all of which are showy and interesting.

JUSTICIA SPECIOSA. Nat. Ord. *Acanthaceæ*.—A neat half-shrubby stove plant, which blooms in profusion, and its bright purple flowers render it very showy.

JASMINUM PUBESCENS. Nat. Ord. *Jasminaceæ*.—A charming stove shrub, which blooms in profusion. The flowers are pure white, highly fragrant, and are produced in trusses. It is an excellent stove ornament.

In the orchid house the following are in fine bloom:—*Cypripedium insigne;* its large, conspicuous blossoms render it very attractive; they are green barred and spotted with brown, and tipped with white. It blooms for several successive months. *Scutearia stelli*, a beautiful plant, whose curious leaves are about three feet long, and the thickness of a swan's quill. The flowers are yellow, spotted with crimson, and very fragrant. *Cœlia macrostachya*, *Phalænopsis amabilis*, *Ansellia Africana*, and *Lycaste plane*, are in beauteous bloom, with some others of less note; all, however, are welcome at this period of the year.

In the stove there are several kinds of Gesnerias in bloom. The following are the most conspicuous:—*G. zebrina*, *G. zebrina compacta*, *G. zebrina splendens* (which is the best of all); *G. ignorata*, and *G. Pardina*. These are now in fine perfection, and at this period of winter are exceedingly ornamental and valuable.

Soon the very superb collection of Acacias will be in fine display; a description of all the best, with remarks on treatment, will be forwarded for insertion herein.

ON THE INCREASE OF APHIDES.

BY MR. PETER MAKENZIE, WEST PLEAN.

We are informed by some philosophers, that a mind without immediate employment naturally recurs to the past or the future. The reflector finds that he was happy, and knows that he cannot be so now. He sees that he may yet be happy, and wishes the hour was come. Thus every period of his continuance is miserable, except that very short one of immediate gratification. We would tell such persons to engage in some department of gardening, and there will be no fear but they will get an abundance of employment all the year round, which will increase their happiness, and banish misery from their minds.

At this season they may have an opportunity of knowing much about the small yet powerful enemies that injure many of our cultivated plants, we mean the aphides, or plant-lice. In their destructiveness to growing crops, they are placed by some next to the locusts of warm climates, and farmers and gardeners annually suffer considerable losses by their depredations. Yet we are informed that a knowledge of their history is but very imperfectly diffused among those who suffer most by those minute enemies. We may have many things to say about them, but the following account of their fecundity and rapid increase may be new to some of your readers.

The double mode of reproduction in the plant-lice, supposed by Dr. Darwin to resemble the buds and seeds of trees, will serve to account for the very astonishing increase of these insects. Dr. Richardson, in the plant-louse of the rose, reckons in one season ten generations, each generation averaging fifty individuals; so that, by multiplying 50 nine times by itself, one egg will give origin to the almost incredible number of 25,065,093,750,000,000,000. To this must be added the number of eggs laid by the tenth generation before winter, for the renewal of their progeny the following season. M. Réaumur, however, on the observations of M. Bonnet, reckons 90 for the first generation from a single mother; and reckoning that each of these produces 90 more, the second generation will be 8100, the third will be 729,000, the fourth will be 65,610,000, and the fifth will be 5,904,900,000; the ninth generation in this case would be 350,970,489,000,000,000. That this calculation is founded on the best ascertained facts, appears from the experiments of M. Bonnet, to which we have above referred; and he has been so particular as to record the day and hour of the birth of each individual insect;

In one of his journals we find 95 plant-lice produced from one mother between the 1st and the 21st of June; in another, 90 plant-lice from the 30th of May to the 15th of June. M. Latreille, a high authority, states the increase at 25 young a day from the same mother; though, on looking over M. Bonnet's tables, we find the numbers never exceed ten, and are usually from four to six young a day; so that, supposing the facts relate to the same species, there must be some mistake in M. Latreille's statement.

Even, however, at the lowest estimate, the rate of increase is almost inconceivable, and hence, we need not wonder that these insects sometimes appear in such numbers as to obscure the air.

"On the 1st of August," says White of Selborne, "about half an hour after three in the afternoon, the people of Selborne were surprised by a shower of *Aphides*, which fell in these parts. They who were walking the streets at that time found themselves covered with these insects, which settled also on the trees and gardens, and blackened all the vegetables where they alighted. These armies, no doubt, were then in a state of emigration, and shifting their quarters, and might, perhaps, come from the great hop plantations of Kent and Sussex, the wind being that day at north. They were observed at the same time at Farnham, and all along the vale at Alton.

To a gardener this must appear frightful. It, however, teaches one useful lesson; at the sight of *one insect* in a house or frame of plants, strongly fumigate with tobacco, or dip the plant overhead in a strong solution of tobacco-water. The genuine liquid may be bought at the tobacco manufacturers, at but a few pence per gallon.

THE HYDRANGEA.

Although this must be admitted to be one of the most showy plants we have, it has certainly been very much neglected of late years. It is, however, still prized by a few, who find it particularly useful for greenhouse and conservatory decoration, displaying its enormous heads of pink and blue flowers in abundance, and remaining a long time in perfection. The following method of treatment being pursued will enable all who practise it to have *large heads* of blossom from plants even in small pots. If cuttings are taken off in August, and potted in a mixture of leaf-mould, loam, and sand, in a well-drained pot, and be placed in an old cucumber or melon frame, they will root freely, and should be potted into four-inch pots as soon as they have become sufficiently rooted. The plants should be kept to one leader, the top bud of which should not be pinched out, but all lateral or side shoots should be removed as soon as they appear. When sufficiently established in their pots, move them to the greenhouse, where they should be wintered. Early in spring shift them into five or six-inch pots, as may best suit your convenience, and as soon as they have commenced growth liberally supply them with water, using the syringe freely at all times. Perhaps the most convenient place for them at this season is a vinery, which I find suits them well, and brings them on gently until the blossoms make their appearance. Water at this stage must on no account be neglected. If large specimen plants are required, they should be grown another season, when they will form a fine bush and produce many heads of blossoms, although inferior in size to those on plants kept to one leader. I have grown the same plants for years; in this way they have made huge specimens, and amply repaid me for my trouble; but if small plants with large heads are preferred, they shonld be grown from cuttings every season. I have also struck cuttings in February, and grown them on until the following season, using a slight bottom-heat, and disbudding the useless eyes; such plants have produced enormous heads, superior in size to those struck in August, but then the plants are longer in hand, which, in many cases, is a consideration. The soil best suited for their culture is equal portions of cow-dung, leaf-mould, fibrous loam, peat, and sand, well mixed in a rough state. The pots should be thoroughly drained, and, during the blooming season, the plants will be benefited by being placed in a pan of water. Manure-water may be used freely while the plants are in bloom. In order to change them from pink to blues of different shades, pot them in Norwood loam, or common red sand; potting in peat and watering with alum-water will also produce the same effect; but the two former kinds of material are the best. If planted on well-drained ground, and slightly protected in winter, the Hydrangea will form an ornament in the flower-garden such as few can equal; but it must be liberally supplied with water during the blooming season.

MONSTROSITY OF A ROSE.

With few exceptions, the flowers on a standard Rose growing on a lawn failed this summer to exhibit good blooms, and presented various degrees and forms of monstrosity. This occurrence may be attributed to the wet season stimulating the tree to the production of wood instead of flowers. It should, however, be noted, that neighbouring Rose trees, growing under precisely the same circumstances, but of different species, produced their proper flowers; with, however, a prevailing tendency to abortive petal growth, and the production of the condition known as the "green eye." In the tree in question the most remarkable example was that of a flower which was repeated three times on the same axis, each time exhibiting sepals, petals (coloured and scented), perfect stamens with pollen, and imperfect semi-leafy carpels. The stem expanded into its usual rounded receptacle, fringed by the free portion of the calyx, of its general character, and supporting on its discoid margin the petals, and within these numerous stamens. Some of the innermost petals were not well coloured, nor well developed, but small and greenish. From the sides of the cup-like receptacle sprang several hairy styles crowned by their stigmas, of much the usual form, but still not well formed; and along with these imperfect carpels of a green colour, and having the form of narrow leaves folded longitudinally on themselves, and many of them terminating in a fringed process or awn. Neither the normal styles nor the leafy carpels had ovules. The centre of the cup exhibited a larger carpellary leaf, so folded as to enclose one or more similar though more delicate leaves and a growing point, representing a continuation of the stem. This point, gradually elongated, developed towards one side two lanceolate decurrent leaves or bracts, which, like itself, assumed a reddish colour. Having acquired about an inch in length, it shot out five ovate-lanceolate acuminate sepals, confluent at their base, and decurrent, not on the same plane but spirally arranged, and also tinged red. Thus, a second flower grew in all respects like the first, except that it had a very indistinct receptacle. During the development of the second, the first flower withered, its petals falling away. The axis of the second inflorescence, endued with the like powers of growth, extended itself, produced a sheathing bract, then swelled into a half-globular receptacle, with five sepals as in the last, but here set in a regular whorl on the same plane, and having two bracts, like themselves, immediately external to them. The petals of this third flower were numerous, small indeed, but sweet-scented; the stamens numerous, containing pollen; whilst a few very rudimentary, slender, carpellary leaves and styles surrounded a larger involuted one, containing a growing point along with two or three pistils terminated by stigmas. In this terminal inflorescence (examined whilst actually flowering) the carpellary leaves were smallest, and the leaf-like character most lost; whilst many styles, hairy and delicate, occupied the concavity of the receptacle, and apparently had perfect carpels at their base.

The production of these three flowers in sequence occupied two months. On a longitudinal section the growing point in each flower was seen not to have proceeded from the exact centre or actual axis of the receptacle, but rather from one side. Hence, both the irregular peduncles curved so as to maintain the flower in the same line with the original stem.

In another monstrosity, in which two flowers were produced on the same continuous axis, the sepals exhibited a tendency to be compound, by developing imperfect leaflets. In a third example the sepals had grown into large compound leaves, having two leaflets on each side the petiole, and a very large terminal one. In this case, too, where but one flower formed, the growing point started at nearly a right angle to the original peduncle, and then, curving to bring itself into the same straight line, grew into a strong shoot, forming at its apex a good bud (flower) for the winter. A similar growth of the calyx into actual leaves occurred in another case.

The last irregularity to which I shall refer is, where the axis of a flower grew into a strong leafy shoot. In this case, no cup-like receptacle existed, but the carpels were placed on a disc-like expansion surrounding the stem, which appeared little more than a large node from which the leaves had fallen. The carpels here extended upwards in a green, leafy form, and were deficient of ovules. Eight such, with dilated capsule-like bases, were found in a whorl on the same plane; and within these two close together, longer and of a more leaf-like character. Above these last, five more evident leaves, four of which were actually trifoliate, were disposed in a spiral manner around the axis, for the space of an inch above the carpellary whorl. Then a node occurred, surrounded by six pinnate leaves, not quite on the same plane, and yet not in opposite pairs, nor clearly spiral in position. Three quarters of an inch from these leaves the shoot ended by a terminal bud (winter) surrounded by three pinnate leaves of unequal size.

These instances of monstrosity well illustrate the morphology of carpels—their origin from leaves, and their tendency to take on the form, and along with this the spiral arrangement of the latter. The perfect pinnate leaves of a shoot proceeding from the centre of a Rose we must suppose to be morphologically the same with the small folded carpellary leaf; the last instance cited shows the grades of development between the two. The production of the shoot causes the abortion of the flower and its ovules; hence the size and vigour of the shoot afford a measure of the vital vegetative force expended in the formation of a flower, and mainly of its ovules. I am inclined to believe with Schleiden, that the ovule is a product of the axis and not of the carpellary leaves; that indeed it is a bud growing from the axis in the axil of a leaf—*i. e.*, the carpel.—*Arlidge, in Annals of Natural History.*

THE BIG TREE (WELLINGTONIA GIGANTEA).

DR. C. F. WINSLOW, in the *California Farmer*, a weekly journal published at San Francisco, has given an account of his excursion from "Murphy's Camp" (2400 feet elevation) to the site of the "Big Tree," on the very stump of which he writes his letter (Aug. 8, 1854), the spot itself being designated, at least by him, "Washington Mammoth Grove." If this account is to be depended upon (and it must be confessed the learned Doctor's style is both flowery and hyperbolical), we learn some new and interesting particulars respecting this gigantic tree: —1st, That the accounts brought home by our sober English traveller, Mr. William Lobb, do not give us the full height to which this Pine attains, by one-fourth; 2nd, that the locality seems to be circumscribed to an area of a few acres; and, 3rd, what concerns us more, now that Messrs. Veitch and Son have enabled us to possess living plants, that the soil and atmosphere at the place of growth are singularly humid; and in this we think the Doctor is likely to be correct. Omitting, then, the mention of "the sublime thoughts, such as have rarely before impressed his soul,"—" of such a nature that he often involuntarily surrendered himself to the idea that he was approaching the visible and actual presence of the Great One who revealed himself to Moses on the heights of Sinai," etc.—we shall confine ourselves to the following extracts:—" The road (from Murphy's Camp) gradually ascending for several miles over a varied landscape, becomes afterwards more level, or rather it undulates and winds for a long stretch among hills and valleys thickly wooded, and fit for farms and deer parks. During the last three miles the ascent is steady and through a virgin wilderness of Pines, Firs, Spruce. Arbor-Vitæ, and other cone-bearing trees, whose magnitude perceptibly increases with the altitude of the locality. The whole surface of the hill-sides is covered with herbage or plants, more or less verdant, and in spots there is a freshness to the verdure which reminds one of spring, and which contrasts strongly with the arid and dusty plains and hills of the lower sections of country. The wild raspberry, strawberry, pea, and hazelnut mingle their humble or more prominent foliage with the diversified undergrowths of the forest; and here and there new and attractive flowers struck my eye so pleasingly, that I was compelled at times to stop, gather, examine, and admire them. The charm of these regions to the botanist would be in the freshness and luxuriance with which Nature elaborates her vegetable forms. The vital principle, stimulated by the condensing vapours of the cool fresh air of night, and nourished by a suitable pabulum in the decomposing soil, acts with a steady energy, and thousands of stately trees stud the hills in all directions, so lofty as to amaze the observer, and to compel him when near them to strain his eyes to catch a view of their topmost offshoots. But the most amazing of all these vegetable productions are here; and Nature, by peculiar geognostic arrangements, seems to have isolated them to startle and arrest the attention of mankind, and to strengthen scientific truth, touching the special distribution of organic races.

" So far as known, the vegetable growth to which the name of 'Big Tree' has been attached grows in no other region of the Sierra Nevada, nor on any other mountain-range of the earth. It exists here only, and all the individuals of its kind, so far as I can learn, are localized to this vicinity. They are embraced within a range of 200 acres, and are enclosed in a basin of coarse siliceous material, surrounded by a sloping ridge of sienitic rock, which in some places projects above the soil. The basin is reeking with moisture, and in the lowest places the water is standing, and some of the largest trees dip their roots into the pools or water-runs. The trees of very large dimensions number considerably more than one hundred. Mr. Blake measured one 94 feet in circumference at the root; the side of which had been partly burnt by contact with another tree, the head of which had fallen against it. The latter can be measured 450 feet from its head to its root! A large portion of this fallen monster is still to be seen and examined; and by the measurement of Mr. Lapham, the proprietor of the place, it is said be ten feet in diameter at 350 feet from the uptorn root! In falling it had prostrated another large tree in its course, and pressed out the earth beneath itself, so as to be imbedded a number of feet into the ground. Its diameter across its root is 40 feet. A man is nothing in comparison of dimensions, while walking on it or standing near its side.

"This to me was the greatest wonder of the forest. The tree which it prostrated in falling has been burnt hollow, and is so large, a gentleman who accompanied us from Murphy's informed us, that when he first visited the place, two years ago, he rode through it on horseback for 200 feet without stopping but at one spot, as he entered at the root. We all walked many scores of feet through it, but a large piece of its side has fallen in near the head. But there are many standing whose magnitude absolutely oppresses the mind with awe. In one place three of these gigantic objects grow side by side, as if planted with special reference to their present appearance. Another, so monstrous as to absolutely compel you to walk around it, and even linger, is divided at from 50 to 100 feet from the ground into three of these straight mammoth trunks, towering over 300 feet into the sky.

"There are others, whose proportions are as delicate, symmetrical, clean, and straight as small Spruces, that rise 350 feet from the ground. In one spot a huge knot of some ancient prostrate giant is visible above the soil, where it fell ages ago, and the earth has accumulated so as nearly to obliterate all traces of its former existence. The wood of this tree, I am told by Mr. Lapham, is remarkable for its slow decay. When first cut down its fibre is white, but it soon becomes reddish, and long exposure makes it as dark as mahogany; it is soft, and resembles in some respects pine and cedar. Its bark, however, is much unlike these trees; nearest the ground it is prodigiously thick, fibrous, and when pressed on has a peculiar feeling of elasticity. In some places it is eighteen inches thick, and resembles a mass of cocoa-nut husks, thickly matted and pressed together, only the fibrous material is exceedingly fine, and altogether unlike the husk of the cocoa-nut. This bark is fissured irregularly with numerous indentations, which give it the appearance of great inequality and roughness. At 150 feet from the ground it is only about two inches thick on the living tree, which is now being stripped of its bark for transportation from the country.

"An hotel is built near the 'Big Tree,' whose bark was stripped last year and exhibited in San Francisco; and an appendage of the house is built over it, so as to constitute a hall for cotillion parties. At the root it measures 96 feet in circumference, and a portion of its prostrate trunk is used for a bowling alley. To overthrow it, holes were bored through with a large auger, and after the trunk was mostly separated, attempts were made to wedge and upset it; but its immense size and weight prevented the success of this undertaking, and on the fourth day it fell by the force of a strong wind. In falling it convulsed the earth, and by its weight forced the soil from beneath it, so that it lies in a great trench, and mud and stones were driven near a hundred feet high, where they have left their marks on neighbouring trees."

The following paragraph bears very hard upon Dr. Lindley:—"The name that has been applied to this tree by Professor Lindley, an English botanist, is Wellingtonia gigantea. By him it is declared to be so much unlike other Coniferæ, as not only to be a new species, but to require description as a new genus. Other botanists of eminence think differently. To this, however, he has seen fit to apply the name of an English hero, a step indicating as much personal arrogance or weakness as scientific indelicacy; for it must have been a prominent idea in the mind of that person that American naturalists would regard with surprise and reluctance the application of a British name, however meritoriously honoured, when a name so worthy of immortal honour and renown as that of Washington would strike the mind of the world as far more suitable to the most gigantic and remarkable vegetable wonder indigenous to a country where his name is the most distinguished ornament. As he and his generation declared themselves independent of all English rule and political dictation, so American naturalists must in this case express their respectful dissent from all British scientific 'stamp acts.' If the 'Big Tree' be a Taxodium, let it be called now and for ever *Taxodium Washingtonium*. If it should be properly ranked as a new genus, then let it be called to the end of time *Washingtonia Californica.* The generic name indicates unparalleled greatness and grandeur; its specific name, the only locality in the world where it is found. No names can be more appropriate; and if it be in accordance with the views of American botanists, I trust the scientific honour of our country may be vindicated from foreign indelicacy by boldly discarding the name now applied to it, and by affixing to it that of the immortal man whose memory we all love and honour, and teach our children to adore. Under any and all circumstances, however, whether of perpetuity or extinction, the name of *Wellington* should be discarded, and that of *Washington* attached to it, and transmitted to the schools of future ages."—*Hooker's Journal of Botany.*

MISCELLANEOUS.

THE COMMON ST. JOHN'S WORT, (*Hypericum perforatum*) has a powerful lemon-like scent when rubbed, staining the fingers with dark purple, from the great abundance of coloured essential oil lodged in the herbage and even in the petals. As this plant was found to bleed at the slightest touch, it was supposed to have a healing quality, and that it became the "balm of the warrior's wound," giving a blood-red colour to every composition, whether of a spirituous or oily nature, into which it entered. The common people in France and Germany gather this species with great ceremony on St. John's Day, and hang it in their windows as a charm against storms, thunder, and evil spirits, mistaking the meaning of some medical writers, who have fancifully given this plant the name of *Fuga Dæmonum*, from a supposition that it was good in maniacal and hypochondriacal disorders. Formerly it was always carried about by the people of Scotland as a charm against witchcraft and enchantment.—*James Collier.*

ON PRUNING FOREST AND ORNAMENTAL TREES.—Particular regard should be paid to their health and vigour, and not to their size and age. A vigorous tree, full of sap, and twenty years of age, may be pruned with more safety than a stunted one fifteen years old, because the parts cut over would heal sooner in the former one, from its being full of sap, than in the latter, which was deficient in sap; indeed, the whole art of pruning consists in thinning out the branches according to the size, health, and vigour of the tree; to have the tree as well poised with branches as circumstances will allow, and leaving those branches on the tree which will assist the general circulation of the sap.—*Forester.*

TO HEAL THE WOUNDS OF TREES.—When the tree is cut, or otherwise wounded, smooth the place with a sharp knife, and if cankered scrape or cut it all out; then put ¼ lb. of tallow into 2 lb. of tar, warm it over the fire till the tallow is melted, then add 1 oz. of saltpetre, stir it together, and lay it on the parts you want to heal.

BRIEF REMARKS, &c.

STERCULIA GUTTATA.—The bark of this tree the Malabars convert into a flaxy substance, of which the natives of the lower coasts of Wynaad continue to make a sort of clothing. The tree is felled, the branches lopped off, and the trunk cut into pieces of six feet long, a perpendicular incision being made in each piece; the bark is opened and taken off whole, chopped, washed, and dried in the sun. By these means, and without any further process, it becomes fit for the purposes of clothing.—*Hooker, Jour. Bot.*

ROTTEN TAN.—As a constant subscriber to the Floricultural Cabinet, permit me to ask, through the medium of your widely circulated magazine, for some information from the readers thereof as to the use of *rotten tan*, whether it has properties as a *manure*, besides being useful to lighten heavy soil, and what plants flourish in it, when mixed with other compost?—*W. H. Spencer.*

CAUSE OF DEW.—The discovery of Dufay remained a barren fact until the attention of Dr. Wells was directed to the subject. He argued that, as a clear and cloudless sky radiates little or no heat towards the surface of the earth, all objects placed on the surface, which are good radiators, must necessarily fall in temperature during the night, if they be in a situation in which they are not exposed to the radiation of other objects in their neighbourhood. Grass, and other products of vegetation, are in general good radiators of heat. The vegetation which covers the ground in an open champaign country on a clear night will therefore undergo a depression of temperature, because it will absorb less heat than it radiates. The vegetables which thus acquire a lower temperature than the atmosphere, reduce the air immediately contiguous to them to a temperature below saturation, and a proportionately copious condensation of vapour takes place, and a deposition of dew is formed on the leaves and flowers of all vegetables. In fact every object, in proportion as it is a good radiator, receives a deposition of moisture. On the other hand, objects which are bad radiators are observed to be free from dew.

Blades of grass sustain large pellucid dew-drops, while the naked soil in their neighbourhood is free from them.

Gardens of the South Sea Islands.—"A garden is a valuable acquisition in this part of the world; and, next to our dwellings, we regard it as an important part of our domestic establishment. As soon as the sites of our houses were fixed, we employed natives to enclose a piece of ground adjoining them. I had received from Governor Macquarie, in New South Wales, a hundred ears of Egyptian wheat, which being a kind frequently grown in a warm climate, it was supposed might flourish in these islands. The grain was planted with care, and grew remarkably well; the leaves were green, and grew high and strong, and the ears large; but as they began to turn yellow, it appeared that scarcely one of them contained a single grain of corn, and the few that were found were shrivelled and dry. Potatoes were also tried, and have been repeatedly planted since, in different situations and seasons; but although, after the first growth, they usually appear like young potatoes, if planted again, they are invariably soft and sweet, very small, and by no means so palatable as the indigenous sweet potato.

"At Asariaita, I had sown a number of seeds from England, Rio Janeiro, and New South Wales. Coffee and Cashew-nuts (*Anacardium occidentale*) I had before planted in boxes; they grew well, but the Coffee and Cashew-nuts were totally destroyed by the goats, which, leaping the fence one day, in a few minutes ate up the plants, on which I had bestowed much care. I succeeded, however, in preserving the Custard-apple (*Annona triloba*, or *squamosa*) that I had brought from Rio, and plants from it are now bearing fruit in several of the islands. In addition to these, I was enabled to cultivate Papaw-apple (*Carica papaya*), French-beans, carrots, turnips, cabbage, and Indian-corn; while our little flower-garden in Huahine was adorned with the *Convolvulus major* and *minor*, *Capsicum*, *Helianthus* and *Amaranthus*, with several brilliant native flowers, amongst which the *Gardenia* and *Hibiscus rosa sinensis* were always conspicuous. The front of our house was shaded by orange trees, and our garden enclosed with a citron hedge.

"The natives display a taste for the beautiful, in their fondness of flowers. The *Gardenia*, *Hibiscus*, and *Amaranthus* were often wove in the most graceful wreaths and garlands, and worn on their brows. They were delighted when the Sunflower (*Helianthus*) was added to their flowers. The king and queen passed by my garden, when the first ever grown in the islands was in flower, and came in to admire its size and brilliant colours. Soon after their return, I received a note from the king, asking a flower for the queen, and also one for her sister. I sent them each a small one; and the next time they appeared in public, the large Sun-flowers were fixed as ornaments in their hair."—*J. Stainer.*

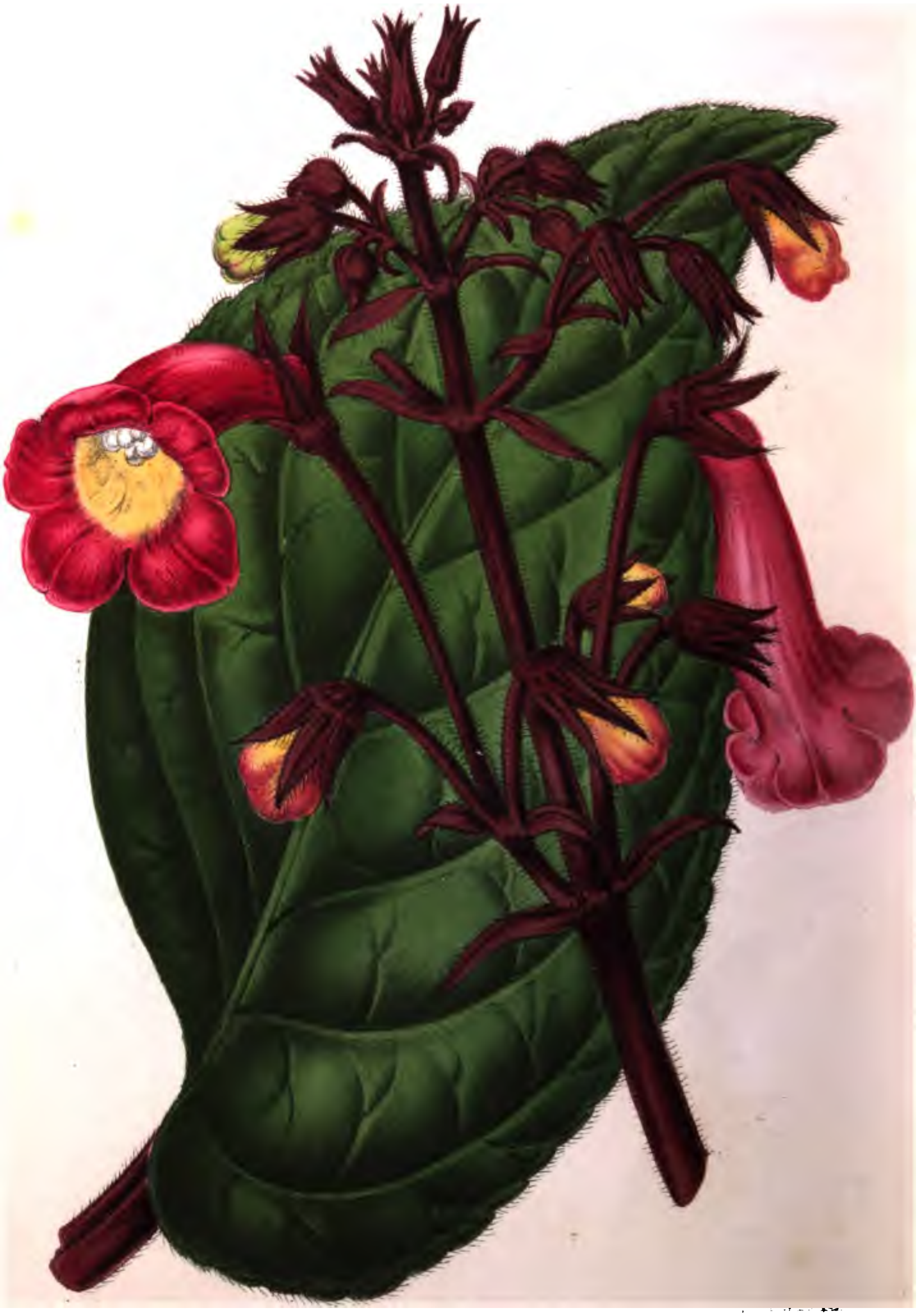
FLORAL OPERATIONS FOR FEBRUARY.

Particular attention is now necessary to provide an ample supply of *robust bushy plants* for the summer's floral display of the *Flower Garden* and *Lawn*. If deferred later, the plants will be in proportion weaker, therefore be determined to have a good stock by the end of April. To accomplish this, sow seeds, put in cuttings, divide suitable perennials, pot off singly the autumn-struck plants, etc. Do not *delay* these required operations, but *immediately* attend to them. *Now* too is the time to make a plan of the flower-garden, etc., and mark each bed with the name of the plants required, which will be a guide for stock required.

Flower Garden.—Plant *Roses*, and prune the *hardy class*, cutting back to two or at most three buds, not only the young shoots of last year, but the naked wood of previous years. Rich manure must be laid over the roots of all *Roses*, removing a few inches of the soil, and filling up the hollow with it, then sprinkle over a little earth to prevent it drying. *Hollyhocks*, *Perennial* and *Biennial* herbaceous plants should be planted immediately, or they will not be sufficiently established to bloom well, if deferred much longer. ***Annuals***, sow some of the hardier kinds towards end of the month, covering rather deeper than later on. ***Pink*** and ***Pansy*** beds should be stirred over, pressing the soil firmly to the plants, and see they are protected as directed last month. Stir the surface of all flower-beds, and add fresh loam, rotten manure or leaf-mould, if not previously done. ***Bulbs***, protect the beds from frost, and where any plants appear, screen from strong winds, also beds of autumn-planted ***Ranunculus*** and ***Anemones***. ***Auriculas*** and ***Polyanthus***, take off suckers, top dress, keep from frost, but give air freely at other times, and let them have manure-water twice a week; also sow ***seeds in pans***, if omitted last ***summer***. ***Ranunculus bed*** make directly; it will duly settle by the 15th, when they must be planted, if the weather permit. The tubers must be five inches apart, and be covered 1½ inch; also, if the soil be rather dry, press the surface a little firm after planting. ***Pinks***, ***Pansies***, ***Carnations***, and ***Picotees*** in pots, must have a free admission of *dry air*, and in wet weather tilt the lights on both sides. Repot the ***show Pansies*** into those they are to bloom in, give a liberal drainage, and a rich loamy soil; let them have manure-water twice a week. Sow ***Mignonette*** for boxes in small pots, and turn out into them in April with entire balls. ***Tuberose*** plant in pots, or border, in a warm situation. ***Shrubs*** for forcing next winter must now be potted, such as ***Persian Lilacs***, ***Azaleas***, ***Kalmias***, etc. *Verbenas* that are beginning to be spotted by mildew, dust them over and under with sulphur; place some plants in heat to push cuttings for striking, and if green-fly attack, fumigate freely with tobacco. Protect the early buds of ***Tree Pæonies*** from injury by frost, also ***Chrysanthemums*** in pots.

GREENHOUSE.—***Cinerarias***, repot; if the green-fly attack, fumigate immediately. Place them near the glass; a pit-frame (dry, is best). *Calceolarias*, repot, to have them large. *Camellias*, inarch or graft; before the new shoots begin to push, place in a hot-bed frame. Do not allow the blooming plants to lack water, or flower-buds will drop; let them have manure-water alternately. Put in cuttings of the single-flowered to graft upon. *Pelargoniums* to bloom in May, now repot into blooming-pots, and repot the smaller plants; also give plenty of air. *Epacris*, *Corræas*, *Acacias*, *Coronillas*, etc., will now be gay; water seldom, but give as much as will moisten the entire ball at each time. *Ericas* attacked with mildew, sprinkle sulphur over and under. ***Alstræmerias***, repot. Air admit freely, when *dry* and mild. *Azaleas*, place in warmest part. *Chinese Primroses*, give manure-water; it improves the colours of flowers. ***Fuchsias***, prune in freely, and start the best sorts in a hot-bed; train, put in cuttings, and as soon as shoots have pushed a little, repot the plants. *Begonias*, some are fine for bloom now. *Show Pelargoniums* must be put into their blooming-pots, with balls entire. *Scarlet Pelargoniums*, see to the large plants, pot if required for extra specimens, etc.; gently bring them on. *Insects* will now be moving, fumigate sulphur, etc., and attend to it at once. Pot the *Lilium lancifolium* for early bloom, also greenhouse *Amaryllises*, *Ixias*, *Oxalis*, etc. Occasionally ***stir up*** the surface of the soil in pots, it promotes the health of the plants.

FORCING STOVE, FRAME, ETC.—*Achimenes*, *Amaryllis*, *Gloxinias*, *Gesnerias*, etc., now start another lot, and pot off singly any which have pushed of those started last month. Sow seeds of *Balsams*, *Cockscomb*, *Amaranthus*, *Salpiglossis*, *Brachycome*, *Asters*, *Stocks*, *Double Indian Pinks*, *Leptosiphon Calceolaria*, *Linum grandiflorum rubrum*, *Chinese Primrose*, etc. *Calceolarias* and *Cinerarias* succeed best in a warm moist temperature, in a pit frame kept about 56°, giving air freely, and fumigate often. *Hyacinths* must be near the glass; change the water in glasses every fourth day. Put in cuttings of *Fuchsias*, *Alonsoas*, *Double Rugwort*, *Shrubby Calceolarias*, *Cupheas*, *Salvias*, *Heliotropes*, *Geraniums*, *Verbenas*, *Bouvardias*, *Linum trigynum*, *Petunias*, *Antirrhinums*, *Anagallis*, etc., for beds. *Cinerarias*, introduce a few to bloom early. *Ixoras*, and similar stove or greenhouse plants intended for exhibitions, should be repotted, pruned, and trained; for the stove section a hot but *moist* temperature is best. ***Roses*** frequently syringe, and fumigate occasionally, to keep down green-fly.



Gesneria Donckelaarii

The Floricultural Cabinet.

MARCH, 1855.

ILLUSTRATIONS.

GESNERIA DONCKELAARII.

Amongst the existing beauties of Flora, the plants belonging to the Nat. Ord. *Gesneriaceæ* rank with the most lovely of our exotic ornaments, especially so are those of the genera *Achimenes* and *Gesnerias*, which by a proper course of treatment can be had in fine bloom every day in the year. Their value, too, is enhanced by succeeding so admirably during the dull months of autumn and winter, when the gay appearance of the richly coloured flowers are strikingly elegant and attractive, eminently calculated to adorn the stove, warm conservatory, and drawing-room.

The charming *Gesneria* which we now figure is an hybrid, which was produced in the Botanic Garden at Ghent. M. Donckelaar, jun., the chief director of that establishment, states that a blossom of *Gesneria discolor* had been impregnated by pollen from one of *Ligeria* (Gloxinia) *rubra*, and the result was the production of this highly beautiful flowering plant.

Our illustration was taken from a plant furnished to our artist by M. Donckelaar, who states that it is the most faithful portrait yet published. We regret, however, that M. Donckelaar had not at that time a plant more fully in flower, for our readers will perceive in our figure that there were nearly thirty blossom-buds which were unexpanded. We have seen several plants of it in bloom, and not one had less than from twelve to twenty fully expanded flowers, and the fine panicled spike, elevated above the two noble heart-shaped leaves, had a strikingly beautiful appearance.

As previously observed, it may be had in bloom all the year, by starting plants into growth at suitable successive periods, and after blooming gradually, to withhold water till the soil is all but dry, in which barely moist state the tubers must be kept undisturbed in the pot during the necessary time of rest, and be placed where they will be preserved from damp and frost.

It flourishes with similar treatment to other *Gesnerias* and *Achi-*

menes, grown either one plant in a pot, or three or four in a pan, as stated by Mr Prestoe in our last month's Magazine.

We saw it in great vigour, grown in a compost of equal parts of light turfy loam, good fibrous peat, and old dry cow-dung, with a sprinkling of silver sand, and a liberal drainage; this compost was not sifted, but well broken by the hand. It is readily increased by its underground tubers, and very easy to cultivate.

The plants can be brought to a blooming condition in a hot-bed frame or warm pit, and when beginning to unfold their flowers, may be taken to the conservatory or greenhouse during the period from April to October, but afterwards must be in a warmer temperature, either in the stove or other suitable room. It merits a place in every collection of this class of plants.

TREATMENT OF ACHIMENES PICTA.

BY MR. W. S. PRESTOE, ROYAL GARDENS, KEW.

AMONGST the various species of this interesting genus of plants, the *A. picta* is one of the most ornamental, both for summer and winter decorations, its beautiful variegated foliage and bright orange-coloured flowers rendering it a great favourite. Although it is so well known, perhaps a few hints on a very successful method of growing it will be useful to some of your readers.

It is a plant which can be propagated either from its leaves or from the small, brown-coloured, scaly tubers, which are generally very plentiful upon the stolons, or from the scaly tubers under ground; the last are most preferable, as they produce stronger plants, which do not require so much trouble as by the other methods. Tubers should be started into growth at four different periods of the year, viz., the beginning of February, the middle of March, the beginning of May, and the middle of June. By starting them at the above specified times, there will be a succession of flowers from the beginning of July to the end of the year. The soil most suitable for them is one-third leaf-mould, one-third well-rotted dung, and one-third peat and sand, with a little fine charcoal mixed therewith. Pans should be prepared for them, by first cleaning them, then placing about one inch of drainage at the bottom of each, covering the drainage with a little moss to keep the soil from washing down amongst it, and the pan should then be filled with the above compost to about an inch from the top; the tubers should be then shaken carefully from their resting pot, and be placed rather thickly all over the soil in the pan, there should be just enough soil to cover them; they should then receive a good watering, and be placed in a bottom heat, not too hot, in a cucumber frame, if there be no other suitable convenience at hand. Great care must be taken in not allowing them to suffer from want of water, neither should they have so much as to keep them soddened. When they have grown about an inch above the soil, they must be carefully removed from the pans, by thrusting a stick down below each and so lifting them up. Pans must be prepared for them as above directed; the most suitable-sized pans for their present reception are those which are eight inches across and four inches deep. In arranging the plants, place from four to eight bulbs in each pan, after which they must have a gentle sprinkling of warm water and be again placed in bottom heat. In fine weather, occasionally sprinkle them over head with clear warm water. They must be protected from the direct rays of the sun, or the foliage will be of a brown colour, instead of the beautiful netted green and white. When they have grown about six inches high, the outside plants (those next the rim of the pan) must have their tops taken off with a sharp knife, leaving the centre one to grow without stopping; this will prevent them being drawn up weakly, as is often the case when all are allowed to grow unstopped; but by permitting the centre one only, the outer ones push lateral branches, and the whole form a handsome pyramidal-shaped bush, displaying the flowers to full view over the whole. Careful attention must be given to supply them with a due sufficiency of water at the roots; and, on the other hand, do not allow steam, which in a hot-bed frame arises from fermenting materials, to injure the leaves, for, if not guarded against, it will make the leaves appear very unsightly, as well as cause the flower-buds to fall off.

When the plants begin to expand their flowers, they must be removed to a drier atmosphere, in the stove, warm conservatory, or greenhouse, there to display their increasing beauty and splendour; when they have ceased to flower they must be taken to a cooler house, and there allowed to dry gradually. When the tubers are fully ripe, they only require to be put in a dry place, protected from frost and damp, till required for next season's cultivation.*

REMARKS ON THE BRUGMANSIA FLAVA.

BY A PRACTICAL GARDENER.

THIS fine blooming plant is so well worth the attention of all who possess a greenhouse, that I think it cannot be too strongly recommended, and when treated in the manner I am about to explain will, I am sure, make its already sensible attractions doubly interesting. In the border of a conservatory I had a plant of *Brugmansia arborea*, which, in the course of the summer of 1853, attained the height of six feet of clear stem; after having bloomed and cast its leaves it was taken up, repotted, and placed in a cool and dry vinery for the winter. In the spring of 1838, about the middle of March, it was turned out of the pot, the old soil cleared from the roots, and repotted in good turfy loam and dung. It was now taken to the pine stove, where a good heat was maintained, in which it soon made fresh growth from the top of the plant, emitting several shoots near each other, two only of which were retained. While this was going on, I obtained from a neighbour a small plant of *Brugmansia flava*, which had been excited about the same time as the plant above alluded to. As soon as the stronger shoot of *B. arborea* had grown about six inches, the small plant of *B. flava* was inarched upon it, and it very soon united, as became apparent from its increased vigour of growth. When all was considered safe, the inarched plant was detached, the bandages removed, the other shoot was also displaced, and *B. aurea*, having the full supply of sap from a vigorous and more robust-growing plant, soon made a fine head, and in the autumn, when in bloom, exhibited far more conspicuously, from its elevated position, its large and beautiful golden trumpet-like flowers. I have practised the same process, too, with a stock of *B. arborea*, being only six inches high, and the increased vigour of the *B. flava* both in growth and bloom was equally admirable.

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* In last month's number there was a mistake at page 28, line 38; instead of *ninety* degrees during the night, it should be *sixty*.

Last winter I procured a plant of the new *yellow double-flowered Brugmansia*, and this has bloomed freely, forming a rather bushy plant two feet high. I inarched a branch of it to the *B. arborea*, and the flowers are nearly double the size of those on the natural plant.

DIOSCOREA BATATAS,

AS A SUBSTITUTE FOR THE POTATO.

There have been many attempts of late years to find a substitute for the potato, in consequence of the disease which has so extensively devastated the crops, and much has been written and said upon the subject.

Although scarcely within the province of the Floricultural Cabinet, we cannot omit to bring under the notice of our readers a few particulars of the above plant, which is now exciting considerable interest, and is likely to become a staple article of food.

It has been improperly confounded by some with *D. japonica*. It was introduced to Europe, about four years ago, by M. de Montigny, the French consul at Shang-Hai, from China. In the last two editions of the "Bon Jardinier," M. Louis Vilmorin has communicated the results of his experience in the cultivation of this plant.

Dioscorea Batatas, or the Chinese Yam, is cultivated through a great portion of the Chinese empire under the name of Tchow-ya. It has been proved by M. Decaisne to be perfectly hardy around Paris, and there is no doubt that it will be found so in our own country.

The rhizomes, or roots, are perennial, very large and long, attaining near two feet, and weighing from one to two pounds each; they are *club-shaped*, the bottom or thick end is as large as a man's fist, tapering upwards to the small end, which is as thick as the finger. The skin is a pale brown, and covered with many fibrous rootlets. The flesh is as white as snow, and free from visible fibres and woody matter; the flavour is pleasant, being a root which contains a large amount of farina, with a greater quantity of starch and less water than the potato, which consequently renders it more nutritive. When cooked, either by roasting or steaming, they have the appearance and taste like the potato; but when boiled they are so soft that, as M. Decaisne says, a slight pressure converts them into a paste resembling that made from the finest wheaten flour. They are cooked in half the time required for potatoes.

Independent of the above excellent qualities, there is every probability of its taking a still more important position in the economy of the country, for when dried and reduced to powder it is equal to arrow-root, or mixed in the proportion of one-third with two-thirds of wheaten flour, it makes an extremely light and wholesome bread, as well as superior pastry.

The stems, which are about the thickness of a small cane, from six to seven feet long, and lie prostrate, are annual, and die down yearly; they are purple spotted with white. The leaves are heart-shaped, produced opposite, in pairs.

The method of cultivation is as follows: plant the sets, which are cut from two or three inches of the *upper portion* of the root (the remainder being serviceable for cooking), on the tops of ridges, which should be about a foot high, and not more apart, *early in April* being the best time. When planted in this manner, it will only be necessary to dig one spade deep in taking them up, and the ground is levelled at the same time. The plants should not be staked, because when allowed to trail over the ground they tend to preserve the moisture from evaporation. If allowed to grow too vigorously, the roots will be smaller than when the plants are kept pruned and shortened. The Chinese increase it by layering. It may be abundantly propagated by this means, as well as by cuttings. In China it is exclusively grown in sandy soils, where other crops will not flourish.

The roots will keep well for a year and upwards, and are not liable to *shoot*, as the potato does.

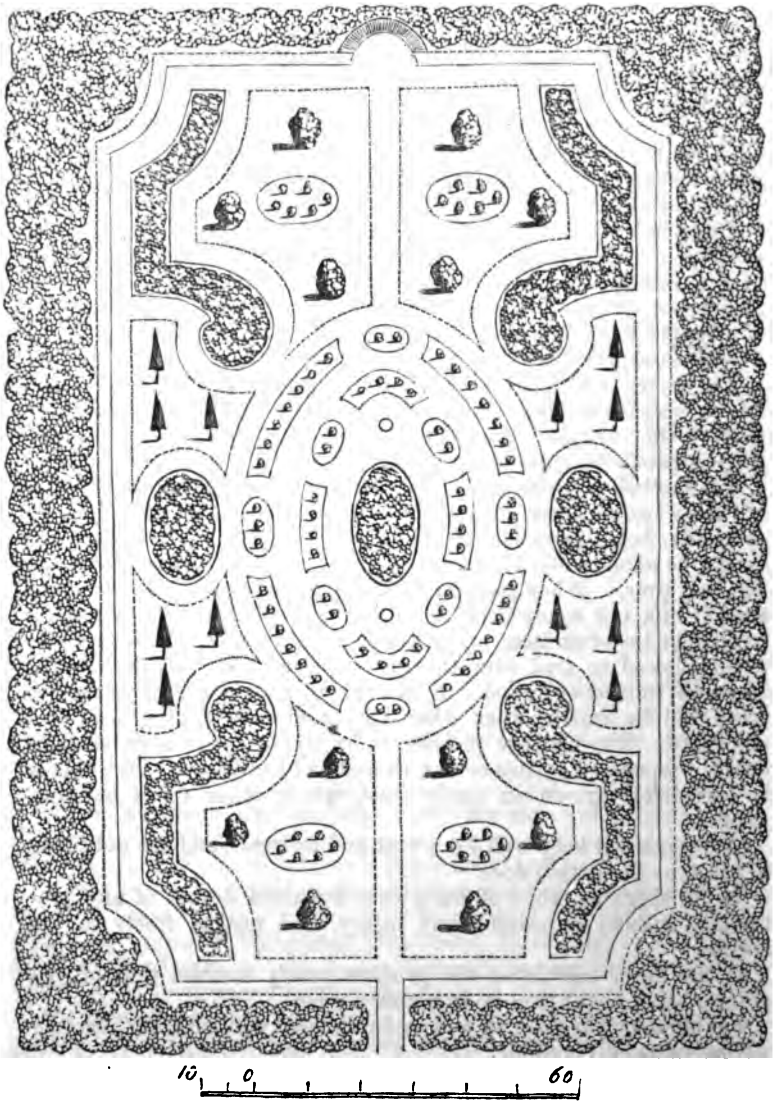
In the neighbourhood of Paris they remained devoid of any protection, without sustaining any injury, and pushed freely in the spring.

It has been calculated the produce nearly doubles that of the potato, being about twenty-four tons per acre.

For culinary purposes as well as for cattle it will, no doubt, become a most valuable vegetable.

To those who are desirous of obtaining farther information, we recommend an excellent pamphlet published by Mr. John Henderson of Kingskerswell, South Devon, entitled "The Chinese Potato," price one shilling, which contains a fine lithographic drawing of the root and plant, of the natural size, also a full account of its history, culture, etc.

DESIGN FOR A FLOWER GARDEN, BY T. RUTGER, ESQ.



THE design annexed to this article, it will be perceived, is enclosed by a thickly planted shrubbery and a verge of grass inside. Should water be available, the oval clump in the centre may be converted into a basin for gold and silver fish. The small circles, one at each end of the clump, are intended as sites for vases to contain flowers. At the extreme end is a place indicated for a circular seat or alcove. The shrubs selected for planting on the compartments of grass should be dwarf evergreens of the choicest kinds.

REMARKS ON SCHIZANTHUS RETUSUS.

BY AMICUS.

In a recent number some particulars are given of this very handsome genus of plants. I beg to contribute a few additional observations, and in doing so remark that the roots of all the species of *Schizanthus* are very tender, and easily injured; the first effect of injury visible is the drooping of the leaves of the plants, as if for want of water, which is too often administered as a remedy; very shortly after drooping, the plant falls over, the stem having cankered just above the soil. We have more than once experienced this; and as a remedy recommend the pots in which they are grown to be well drained, and the plants to be rather elevated in the centre of the pots, judicious waterings, and light soil. Those intended for the principal flowering should be sown the previous summer, or early in the autumn; and in February or March another sowing should be made to succeed. The autumn sowings, or rather those of the previous summer, should be sown in the middle of July and beginning of August. Light rich mould is the most suitable for the purpose. As soon as the plants have formed two proper leaves, pot them in sixty-sized pots, drained so as to allow the water to pass off freely. They should remain in these pots in a cool airy part of the greenhouse or dry frame during the winter; and about the beginning of March be shifted into pots a size larger, which shifting should be repeated as often as the roots reach to the sides of the pots. The soil should be composed of about equal parts of peat, well-rotted dung, and light sandy loam. When the frosts are over, the plants may either be turned into the borders in a light sandy soil, or reserved to flower in pots at the option of the cultivator.

HOLCUS SACCHARATUS.

BY MR. JOHN HENDERSON, KINGSKERSWELL, SOUTH DEVON.

Whilst travelling, in the autumn of last year, in Belgium and France, I met with the *Holcus saccharatus*, the properties and qualities of which I now purpose to describe. It is not strictly speaking a new plant, since it was cultivated in Italy in the fifteenth century, where it was probably introduced by the Venetians and Genoese, during the period of the great maritime intercourse which then existed. It was not, however, known among us until about five years since, when M. de Montigny, the French consul at Shang-Hai, sent a collection of seeds to the Geographical Society at Paris, among which was found a packet labelled "Sugar-cane of the North of China." These seeds were distributed with great liberality in France, and, as in the case of the *Dioscorea*, many experiments were tried, and the results carefully noted. These have been most fully described by the able Editor of the *Gardeners' Chronicle* (in an article, January 20th, 1855), which is so replete with information that, in availing myself of the kind permission I have received, I shall quote portions of it. "The juice of the *Holcus* furnishes," M. Vilmorin, Directeur of the Jardin des Plantes in Paris, observes, "three important products—sugar, alcohol, and a fermented liquor analogous to cider. When the juice is obtained from peeled canes it is almost colourless, and may be said to consist of merely sugar and water. Its density varies from 1.05 to 1.075, and the proportion of its sugar from 10 to 16 per cent. Sometimes, however, as much as a third of the total amount of sugar is not crystallizable, and to this circumstance is attributed the facility with which the juice enters into fermentation, and the large amount of alcohol it affords compared with the quantity of sugar directly indicated by the saccharometer. From this it appears that the saccharine matter of the plant cannot be rendered wholly available in the sugar manufactory; for about one-third of it is lost. On the other hand, the state in which that one-third exists is considered the most favourable for the distiller, and for preparing a fermented liquor resembling cider. It is not expected that the *Holcus* can compete with Beet as regards marketable sugar produced in the north and middle of France; but in the south of France and Algeria, or indeed in any region between where the Sugar-cane ceases to thrive and the 44th degree of latitude, the *Holcus* may be profitably cultivated for sugar." Elsewhere M. Vilmorin concludes, from the results of his experiments, that it will be most advantageously cultivated for its alcoholic products. Its value in this respect may be estimated by the result of some experiments which he has made. He obtained from stems, from which the peel had been stripped, at the rate of from 55 to 60 per cent. of juice. The upper joints and spikes were only cut off; but by cutting off more, and subjecting the stems to a better process of crushing, he thinks that 70 per cent. of juice could be obtained. The quantity of stems employed, large and small together, was 553 lbs., which gave 28 gallons of juice, of the density of 1.052; and as the pressing was done in a common cider press, he estimated that upwards of three gallons were lost in moistening the large surfaces of the apparatus.

"The quantity of sugar from the *Holcus* has been estimated higher than that from Beet-root; but the small difference would not compensate for the extra labour required for preparing the canes, and for the greater difficulty in extracting. The quantity of spirit, however, far exceeds that derived from Beet-root, the difference being upwards of sixty gallons on the produce of an acre. A liquor resembling cider can also be made from the *Holcus*, and is said to be very good when properly prepared. The quantity of juice would be 1207 gallons from the produce of an acre. For making this liquor, the canes require to be either exposed to the sun for several days, in order to concentrate the juices by evaporation, or to be placed in a slow oven; or the juice, after being pressed out, must be boiled down to the required density, along with about seven ounces of fresh oak chips for every twenty-two gallons of juice. The juice readily ferments with the addition of a little yeast, or with a bunch of grapes squeezed into it."

The above statements have been taken from M. Louis Vilmorin's reports. There is no doubt that the *Holcus saccharatus* may be profitably grown in England for distillation (provided no objection be made by the Excise authorities). Not only may the above commercial articles be prepared from it, but that which has hitherto been considered as refuse is found to consist to a very great extent of excellent fibre, which can be readily extracted and bleached, and is worth at least £10 to £15 per ton to the paper-makers. This very important fact seems to remove all doubt as to the value of the *Holcus* to cultivators.

I pass by the consideration of the question as to the facilities offered by this plant for the making of sugar, since, as a great portion of the saccharine matter cannot be crystallized, it is the more valuable for the purposes of distillation, inasmuch as, from that very fact, it produces an alcohol of better quality. It is in this point of view that I consider this plant demands *especial* consideration, since the sugar it contains being of a nature analogous to that of the grape, renders it of more than ordinary value. This will, I think, be seen at once by a careful perusal of the article already quoted; but in addition thereto I will adduce the opinion of Dr. Turrell, who, in a communication to the Minister of War, informed him that "M. de Beauregard having fermented (by means of the refuse of grapes) a quantity of the juice of the *Holcus* in his wine-vats, obtained an alcohol of excellent flavour, which he sent to the market at Marseilles, where it realized the same price as the ordinary alcohols there exposed." Now when we consider how materially the wine crops have been affected by disease, it is of the utmost moment that some great substitute should be provided. Of all that have yet been tried, Dr. Turrell assigns to the *Holcus* the highest place, since, he says, it produces an alcohol altogether superior to anything else that has been proposed. He further informs us that the district of Toulon will be in a position to cultivate this year (1855) 2500 acres. Estimating the alcohol extracted at the rate of five per cent. upon the juice, he reckons the produce at 28,000 hectolitres of pure alcohol; this being valued at 180 francs the hectolitre, would yield a return of 5,040,000 francs, being at the rate of £86 per English acre. And when we take into account the statement of the Doctor, that this estimate is less than the actual return, we cannot but be surprised at the enormous profit resulting from its cultivation, and many will doubtless see that to till the fields at home will be more remunerative than a long voyage across the sea to dig up the gold of California.

These, then, are the results of the experiments already made, and they are such as, in my opinion, to convince any who consider the question impartially, and who also take into account the simple method of its cultivation, that a more valuable or remunerative plant has not been presented to the notice of the public for many years past, if ever. There are points, however, which demand consideration, and these have been so well put, with his usual foresight, by Dr. Lindley, that in answering his questions I seem to meet all that can arise. He asks—1st. Whether our climate is warm enough for it? Experience alone can show; but from the fact of its growing in Belgium and the north of France, I think there is every reason to answer the question in the affirmative. 2nd. Whether the Excise laws will permit its use for distillation? Here, again, we could only solve this difficulty by an appeal to the Excise authorities. Their past course of action, however, would lead one to augur that they would give facilities for this purpose, when we consider the large amount of grain which would be saved to the country. It is well known that at one period most stringent laws were in force as regarded the manufacture of sugar, and that now the cultivation of beet-root in Ireland for this purpose is not only allowed but encouraged. But supposing they did not, the grower has still a remunerative field for its use; since, carefully manufactured, it would produce a cider of a rich and sparkling nature, yielding, as already shown, a produce of 1207 gallons per acre; and, as it is sown in May, and the ground cleared in November, this would be no small addition to the cultivator's annual receipts. 3rd. Whether its refuse can be utilized? I answer, undoubtedly. I have discovered that the plant contains a large amount of fibre that can be used in the manufacture of paper; whether of the finest quality yet remains to be seen. If it meets the last requirement, its value will be considerably enhanced; but it has been already ascertained (from specimens submitted to competent judges) that its market value is, as stated by Dr. Lindley, £10 per ton. An acre would yield about four tons, or £40, after the extraction of the saccharine matter. So that even if it should not be allowed to be used for distillation, even if few should be disposed to make cider, it would amply repay cultivation for the fibre alone. As an article of food for cattle it is also invaluable; it is used in India, under the name of *Jowaree*, largely, in preference to the coarse grass or hay obtainable there, in feeding their hunters and chargers, which thrive well upon it; so much so indeed, that when sent to the coast for racing purposes, a supply of it invariably accompanies them.

It seems, as I write, that I am describing that of which many have dreamt, but few hoped to see. It seems as if I were dwelling in imagination upon a plant which all would welcome as a boon; but I am doing no such thing. I am merely giving a dry detail of positive facts; and those facts I must leave to tell their own tale, and exert their influence upon the several classes of readers most deeply interested in this question.

All soils suitable for cereal crops seem to be adapted to this plant, but alluvial ones appear to agree with it more particularly. I have also seen it vegetate admirably in a light stony soil. It may be sown (and this is the best way) about the middle of May, after the ground has been well worked, and prepared as fine as possible, in drills of from twenty to twenty-four inches apart, and in sowing, the seed must be covered very lightly with earth. When up in June, it will be necessary to weed the plants, at the same time thinning them out to one foot apart. This operation requires care, as the plant in its young state resembles so much the surrounding herbs, that it can scarcely be distinguished from them.

The second method, and which I merely mention, as many parties may have only procured a small packet of seed, is to sow, on a gentle heat, or a warm sheltered situation, in April, and afterwards transplant to the above distances. By this means the plants will be considerably advanced; although, from experiments already made, it does not appear to have any effect in enhancing its value, as far as its saccharine produce is concerned; and moreover, as it appears this plant is essentially rich in hydrocarbonaceous products, the best mode of manuring the ground will be by digging or ploughing in green crops in the month of April, after the manner so extensively adopted in Germany.*

NOTES ON NEW AND SELECT PIANTS.

29. **Datura humilis.** Nat. Ord. *Solanaceæ.* Syn. *D. flava, flore pleno.* This fine species has been cultivated in this country since 1829, but is still very rare in collections. It is inferior in size to most of the genus, attaining only about four feet in height, compact and bushy habit, the main stem robust and thick. The flowers are numerous, large and open, constantly double, of a clear amber-yellow, measuring six inches across, and nine in length, trumpet formed; they exhale a feeble but agreeable odour. It is altogether an excellent acquisition for the greenhouse or conservatory; it is, however, sufficiently hardy to bear the open air during the summer. The *D. alba* is indigenous to India, and it is thought this species has the same origin, but we cannot say definitely. (*Flor. des Serres*, 972.)

30. **Stanhopea Devoniensis.** Nat. Ord. *Orchideæ.* Syn. *S. maculosa.* This handsome species has been dedicated to the Duke of Devonshire. It has been for some time in our collections, and is believed to be a Peruvian introduction. It resembles in colour *S. tigrina*, but is easily distinguished by the form of the epichilium. Each blossom is about three inches long, and three broad; pale sulphur, ornamented with large spots and blotches of a bright crimson maroon. (*Flor. des Serres*, 974.)

31. **Tydæa gigantea.** Nat. Ord. *Gesneriaceæ.* Syn. *Achimenes gigantea.* This is the first of four Gesneriaceous hybrids obtained in 1853, in the establishment of M. Van Houtte, at Ghent, through the

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* For fuller particulars we refer our readers to Mr. Henderson's excellent pamphlet on *Holcus saccharatus, its Description and Culture*, which also contains an admirably engraved figure of the plant.—Editor.

exertions of his foreman, M. Roezel. They are exceedingly ornamental plants, and also interesting in a scientific point of view. Last autumn more than five hundred beautiful specimens of this magnificent plant, all in full flower, decorated the houses at the horticultural establishment at Gendbrugge. It was raised from seed impregnated between *Tydæa* (Achimenes) *picta* and *T. Warscewiczii gigantea*. This plant well deserves the title of *gigantea*, attaining the height of three to four feet. It is an abundant bloomer, and the flowers are somewhat larger than the well-known *Achimenes picta*. The foliage also greatly resembles that old favourite. It is altogether a very splendid production, and as it continues in flower for a length of time it will be very attractive, and deserve extensive cultivation. (*Flor. des Serres*, 975.)

32. WARREA DISCOLOR. Nat. Ord. *Orchideæ*. Messrs. Jackson and Son, of Kingston, purchased this plant at one of M. Warscewicz's sales of Central American plants, and forwarded specimens of it to Sir W. J. Hooker, in May, 1854. It is nearly allied to *W. quadrata*. The flowers are large, being about three inches across, drooping; sepals and petals white, with a faint tinge of purple on the latter; the lip large white, with a dark purple disc. (*Bot. Mag.* 4830.)

33. GEONOMA CORALLIFERA. Nat. Ord. *Palmaceæ*. A small reed-like Palm, lately received at Kew from the Jardin des Plantes, at Paris. Its native country is unknown, but Sir William Hooker considers it a probable inhabitant of the tropical parts of South America, where upwards of thirty species of this genus have been detected and described by various authors. It usually attains the height of five feet, having a stem of about two inches in diameter, at the foot of which the roots form a conical mass, with the upper portion exposed. The leaves are terminal, ten or twelve in number, each about two feet long, split half-way up, forming two broad acuminate lobes; the margin is serrated. From the axil of the leaves the peduncle rises, a foot long, bearing a cylindrical spadix, almost as long as the latter, which is at first green, and afterwards of a bright coral-red; on this the flowers are produced, which appear like red beads arranged spirally. (*Bot. Mag*, 483.)

34. ÆCHMEA MUCRONIFLORA. Nat. Ord. *Bromeliaceæ*. Sent to Sir William Hooker from Demerara, by his Excellency Governor Barkly. It first flowered in this country in September, 1854. The foliage is about a foot in length, of a bluish-green, provided with dark brown spines. The flowers are yellow, and are borne on a spike about four inches long. The bracts are large, and scarlet. The fruit is a pyramidal berry, of an intense blue. It requires the temperature of a stove. (*Bot. Mag.* 4832.)

35. TALINUM POLYANDRUM. Nat. Ord. *Portulaceæ*. An annual, which first flowered in the greenhouse at Kew, in August, 1854. The leaves are about three inches in length, narrow, fleshy; stems somewhat red, nine inches long. The flowers are rosy purple, resembling a small *Calandrinia* in form. It is a native of the Swan River settlement, and seeds were sent to this country by Mr. Drummond. (*Bot. Mag.* 4833.)

36. **Billbergia Wetherelli.** Nat. Ord. *Bromeliaceæ.* For a moist stove this is an acquisition, being very showy, and of easy culture. It is a native of Brazil; plants were sent from Bahia by James Wetherell, Esq., British Vice-Consul at that city. It flowered in December, 1854. The leaves are radical, nearly a foot long. The flowers form a thick pendent spike, rose, white, and blue; the bracts are large, in many cases three inches long, of a brilliant red. (*Bot. Mag.* 4835.)

37. **Bolbophyllum lasianthum.** Nat. Ord. *Orchideæ.* Syn. *Anisopetalum lasianthum.* A native of Manilla and the Indian Islands. A specimen has flowered at Mr. Loddige's. It is a large species, the foliage measuring seven inches by two. The flowers are dull purple, two inches long, clothed with long bristles. (*Gard. Chron.* 111.)

LIST OF SELECT AND NEW FLORISTS' FLOWERS.

Roses. Hybrid Perpetual.—*Alexandrine Bachemeteff*, large and fine, vivid carmine, very beautiful. *Auguste Guinoiseau*, cherry-red, very large and fine. *Baronne Heckeren de Wassenaer*, deep rose, large, full and fine, extra. *Baronne Hallez de Claparède*, shaded crimson-red, large and full. *Caroline de Sansal*, flesh colour, with a rose centre, beautifully cupped, large and very double. *Charles Boissière*, flame coloured, large full flower, excellent for pot culture. *Duchesse d'Orléans*, rosy blush, tinged with lilac, fine bold flower, good form. *General de Brea*, bright cherry-crimson, globular, large and full. *General Castellane*, velvety crinson, large and fine form, not a very robust grower. *General Cavaignac*, lively shady rose, beautiful shape, large and very double. *General Jacqueminot*, rich velvety vermilion, not very double, but large and fine form. *Gloire de France*, crimson-red, large and very double; the best rose known for forcing. *Inermis*, rose, dark centre, splendid. *Jeanne d'Arc*, white slightly tinged with rose, large and fine. *Jules Margottin*, immense flower, rich deep crimson, remains a long time in flower and does not change, extra fine. *Louise Peyronny*, silvery rose, satin-like petals, large and double. *Madame Domage*, bright deep rose, large and fine form. *Madame Harriet Stowe*, delicate rosy blush, large and beautifully cupped, very fragrant. *Madame Fremion*, bright cherry-pink, large and fine form. *Madame Recamier*, delicate flesh, shading to pure white. *Paul Dupuy*, a rich shaded crimson-red, beautifully cupped and very full, fine. *Prince Leon Kotschouby*, clear cherry-carmine, petals of a fine substance and form, remains a long period in flower, and does not change its colour. *Souvenir de Leveson Gower*, shaded cherry-red and crimson, large and full, very fine. *Souvenir de la Reine des Belges*, very brilliant carmine, fine form. *Triomphe de Paris*, ruby-crimson, very fine form, large and beautiful. Bourbon.—*Apolline*, delicate pink, extra large and fine. *La Quintinie*, dark velvety lake, one of the deepest roses grown, very fine. *Leon Oursel*, fiery pink, large and full, very good. *Louis Odier*, bright rose, robust habit and fine form. *Madame Angelina*, salmon-yellow, very distinct and superb. *Prince Albert*, bright cherry-crimson, blooms in clusters, extra full and fine. *Souvenir de Desiré*, violet-crimson. *Souvenir de l'Arquebuse*, ruby, very beautiful. *Souvenir Dumont d'Urville*, cherry-red, shading to violet. *Vorace*, lively crimson, shaded with purple, fine form. Tea-scented China.—*Auguste Vacher*, golden salmon, very beautiful. *Canari*, canary-yellow, not very double, and rather a delicate grower, but distinct. *Gloire de Dijon*, fawn-yellow, tinged with rose, very large and fine, powerfully fragrant; a great acquisition. *Madame de St. Joseph*, rosy salmon, very large and fine. *Madame Mélanie Willemorz*, light nankeen, globular, large and double, fine. *Moiré*, pale yellow, splendid. *Souvenir d'un Ami*, delicate salmon shaded, large and very beautiful.

Choice New Annuals. — *Alonsoa Warscewiczii*, a new and splendid half-hardy annual of beautiful habit; the flowers are borne in spikes, brilliant scarlet. *Dianthus hybridus, flore pleno*, an hybrid between the Carnation and Spanish Pink, crimson, double, and beautifully sweet-scented, a foot and a half high, new and fine hardy annual. *Dianthus imperialis albo striato*, a new and beautiful dwarf, striped Indian Pink, growing about half a foot high. *Elichrysum compositum maximum*, flowers large and double, of various shades of colour from bright yellow to deep scarlet, grows two feet high, hardy annual, new and very fine. *Escholtzia tenuifolia*, a lovely dwarf annual, well adapted for sowing in masses or for edgings, a delicate clear straw-yellow, profuse bloomer, compact habit and neat foliage, growing about nine inches high, hardy and fine. *Gysophila muralis*, a pretty dwarf hardy annual with small glossy foliage, and producing abundance of red flowers; it does not attain more than half a foot in height, which renders it suitable for edgings or small beds. *Helianthus argophyllus;* this Sunflower has beautiful silvery foliage, with bright yellow flowers, hardy, new and ornamental *Leptosiphon aureus*, a very pretty little hardy annual, dwarf compact habit, bright golden yellow flowers produced in abundance, rendering it very showy in pots or beds. *Leptosiphon luteus*, somewhat similar to the last named, flowers paler yellow, grows about nine inches high, hardy. *Limnanthes sulphurea odorata*, yellow edged with white, new and hardy. *Linum grandiflorum rubrum*, one of the most beautiful annuals in cultivation, large bright crimson flowers, very free bloomer, and well adapted for pot culture, grows one foot high, extra fine. *Perilla nankinensis*, a new and curious plant with crimson leaves, producing a good effect amongst bedding plants, a foot and a half high, half hardy. *Reseda odorata myriophylla*, a pretty and distinct new shrubby Mignonette, producing at every point of growth a large spike of flowers, handsome pinnated foliage, distinct and fine. *Sabbatia campestris*, elegant habit with glossy foliage, flowers are produced in abundance, rosy pink with a yellow centre, each about an inch in diameter, new and splendid half-hardy annual. *Whitlavia grandiflora*, flowers resembling the Canterbury-bell, large dark violet, free blooming, fine and showy.

NOTES FROM KEW.

BY MR. W. S. PRESTOE.

THRYSACANTHUS RUTILANS. Nat. Ord. *Labiatea*.—Leaves opposite, ovate. Flowers in long straggling spikes, tubular-shaped corolla, of a dark red colour. It is a pretty stove plant.

HYPOCYITA GRACILIS. Nat. Ord. *Labiateæ*.—Leaves ovate, opposite, covered with small grey hairs. The flowers are produced from the axil of every leaf; they are tubular shaped, and the extremity expands wide, divided into five segments; the outside is white, and the inside spotted with brown. It is a very neat, creeping plant, well suited for growing in baskets suspended from the roof of the stove. It blooms very freely, and merits a place in every stove.

SCIADOCALYX WARSCEWICZII. Nat. Ord. *Gesneriaceæ*.—Leaves opposite, ovate-lanceolate, and crenate (the leaves grow very regular), covered very thick with hairs; from the axil of each leaf arises a peduncle, and from its extremity branch several pedicles, and at their base there are two bracts, heart-shaped. Sometimes the pedicle again branches and forms another, at whose base there are two bracts; at the extremity there is a solitary flower, tubular shaped, of the *brightest orange* colour; the extremity of the corolla is divided into five segments; the inside of the corolla is yellow, beautifully spotted with lake. It is a splendid stove plant, and I think, when it is better known, it will be a great favourite.

BEGONIAS.—Amongst this interesting genus now in bloom there are *B. urophylla*, with very large dark green leaves, and large trusses of light pink-coloured flowers; *B. nitida*, the flowers in very large panicles, of a pretty pink colour; *B. ulmifolia*, *B. rutilans*, and *B. dipetera*, each very good species, and producing large trusses of pure white flowers, contrasting prettily with their fine foliage.

DIPORIDIUM ARBOREUM.—Leaves alternate, ovate. Flowers in umbels, like the common cherry, upon the old wood; they are of a beautiful bright yellow, and very sweet scented. It is a very free flowering plant, and highly merits a place in every stove.

ADENOCALYMNA COMOSUM.—Leaves opposite, ovate-lanceolate. Flowers in large trusses, of a bright golden-yellow. It is a very fast-growing stove climber.

ARDISIA ACUMINATA. Nat. Ord. *Myrsineæ*.—This beautiful stove shrub is very charming at this season of the year, its different-coloured berries, as black, red, green, and white, at the same time have a pretty appearance. *A. crenata*, also, with its rich red berries, is very beautiful. In the orchid house there are in bloom *Dendrobium speciosum*, *D. nobile*, and *D. moniliforme;* they are excellent species, and valuable ornaments at this season.

NOTES ON THE VEGETATION OF ROUMELIA AND BULGARIA.

We have no doubt that the following interesting remarks on the botany of the provinces bordering on the Black Sea will be very acceptable information to our readers; they are the substance of a communication made to Sir William Hooker by Lieutenant-Colonel Cocks.

The common scrub of Bulgaria is composed of dense bushes of *Paliurus aculeatus*, *Rhus Cotinus*, and the common stove *Berberry*, intermixed with small trees of the *Hop Hornbeam*, and some small *Oak*, making the whole of the country like one vast shrubbery, particularly pretty when the *Paliurus* and *Rhus Cotinus* are both in flower, the former making a bright yellow blaze, and the *marabout feathers* of the latter giving a hazy, misty look, as if the setting sun were shining on a cloud, giving it an orange and crimson tinge. The flowers beneath are *Sweet William*, or something akin to it; the large brilliant *Lychnis fulgens*, looking like a bright crimson *Carnation; Erythræa*, the common *Centaury*, a yellow *Geum*, two varieties of *Campanula*, a *Statice* growing in pure dry sand, a harsh branching dwarf variety, with pale whitish flowers; several varieties of the family *Borago*, including *Viper's Bugloss*, and a most lovely capitate *Lithospermum*, with bright ultramarine flowers with a brilliant white eye, which would have been a great acquisition to the bedding-garden, if I had been fortunate enough to have procured seed later in the year. This, with the *Statice*, and the yellow *Immortelle*, and a pink *Helichrysum*, were all growing on a sandy waste at Aladyn, among some curious rocky columns of natural formation. Some of the small trees were enveloped in garlands of *Traveller's Joy* (*Clematis vitalba*). Large *Thistles* were in great quantities, with fine crimson heads, growing to about two feet high; and climbing among the shrubs was a lovely, large, white *Convolvulus*, nearly as large as a coffee-cup; amongst twiners were *Vines*, *Briony*, and a shining heart-shaped leaf, with thorny tough stems, very like a *Smilax*, but I could not find a flower. Not a *Fern*, *Lichen*, or *Moss* to be found. I found a *Pæony* in seed once or twice, and some fine *Verbascums*, particularly a branching variety, which I take to be *ramigerum*, looking like a plant of common Broom. There was an herbaceous plant, which I did not know, growing in a spike, with flowers of a dirty white, prettily veined with brown, with an intensely white lip;* and the *Thorn Apple* (*Datura stramoneum*) was very common, also the common flax and hemp.

In the neighbourhood of the Bosphorus the trees which take your eye the most are the *Oriental Planes*, some of them of gigantic size; and the banks from Stamboul (Constantinople) to the Black Sea are gay in the spring with *Erica arborea, Cistus, Wild Lavender, Judas Trees,* interspersed with which are dwarf shrubs of *Arbutus unedo;* and in the hedges are found the true *Damask Rose,* with a peculiar and delicate scent, the foliage looking as if covered with an impalpable powder, the flowers of a very delicate flesh colour; and *Jasminum revolutum* in quantities; *Sweet Bay, Quercus coccifera,* bearing on the leaves, in spring, a scarlet bladder coccus. Some very pretty varieties of *Oak*; one dwarf, with very downy young foliage, grey and woolly; one with very minute acorns, looking as if made for a lady's head-dress; another, very large and pendulous; also *Cratægus pyracanthus,* and *Privet.* The *Castor-oil plant* grows there in gardens, to the size of apple-trees; and in the "Prince's Islands," opposite Stamboul, is an *Acacia,* called by the Turks "ambeer," very like *A. affinis* in foliage and flower, except that in place of flowering in the spring they are produced in September, when the Greeks pick the round yellow blossoms, and after fastening them to sprigs of *Arbor vitæ,* they decorate their churches; and the Turkish ladies place the flowers among their clothes, as they have a strong aromatic smell, something between pine-apple and sandal wood. There is a fruit called "acrania," either *Prunus* or *Cerasus,* like an elongated Cornelian cherry, very astringeut in taste, making a delicious drink, after stewing and mixing in cold water; the foliage like the spindle-tree; but I could not find out its name, but have given James Veitch, jun., some of its elongated stones, which are something like those of a date. There are whole fields of purple and pink *Larkspur* about Scutari, but whether wild or cultivated I could not discover, though often evidently self-sown. The only ferns were *Lastrea aculeata* and *Pteris aquilina.—Hooker's Journal of Botany.*

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* I opened one of the flowers and made a slight sketch; the way it grew was like a Mullein.

ROSES PROPAGATED BY CUTTINGS OF THE ROOTS.

BY MR. CHARLES GREY, OF BELLE VUE CASTLE, WESTMORELAND.

HAVING been advised to try the experiment of raising Rose trees by taking cuttings off the roots, I did so, and found it to succeed admirably. The mode I adopted was as follows. The first week in March I took some of the long, thick, and fleshy-looking roots of my English, French, Moss, and Perpetual Roses, and cut them into pieces about three inches long. I then smoothened the surface of a border in front of a peach wall, upon this I laid the roots flat, at about six inches apart; when the roots were placed, I covered them with fine sifted soil half an inch deep, gently beating it to the cuttings; I then laid four inches more of loamy soil well enriched with rotten cow-dung, a year old, giving the whole a good watering, and when dry, smoothened the surface over with the back of the spade. By the middle of May every cutting had sent one, and some two strong shoots, and on examination, I found the soil I had covered the cuttings with, to be filled with a mass of fine roots; at this time (July 5th) the shoots are more than a foot high.

I have anxiously watered the bed, as, being in a sunny situation, I found it got dry, more especially so, from the bed being raised upon the old surface of the border; it would have been better to have sunk it, so as finally to have it even with the surrounding soil.

I have also grafted many of the above sorts of Roses, as well as the *China* and *Tea sections*, into pieces of the more vigorous growers, and after fixing the graft in a piece of root which was only about three inches long, I planted it firmly, leaving only the graft above the soil in sandy loam, and plunged the pot in a gentle bottom heat; ten out of every dozen have uniformly united and made good plants the same season.

Whilst on the subject of increase by *pieces of roots*, I may remark that many of the Pelargoniums readily strike by bits of the *somewhat firm* portions of the roots. Last spring, I cut in a quantity of the *Purple Unique* bedding Geranium, and every piece pushed a shoot. I had above two hundred nice plants to turn out into the open ground by the end of May. The bits of roots were each about two inches long. Subsequently, by this process, I have propagated many of the New French spotted Geraniums, as well as Cape species.

MISCELLANEOUS.

HORTICULTURAL SOCIETY'S MEETING, HELD AT THE ROOMS IN REGENT STREET, FEBRUARY 6, 1855.—Some new regulations relative to these Meetings have recently been made by the Society, and *Medals* are now offered for articles shown, similar to what is done at the garden exhibitions, so that an exhibitor calculates on a reward for his productions. This Meeting was the first held under the *new system*, and it has succeeded most admirably. The *extent* and *excellence* of the articles presented very far exceeded those of any Meeting previously held there, and the number of visitors was so great, that the large room as well as the passages leading to it, besides an ante-room, were quite crowded. It was a *high treat indeed* to see, at this early period of so severe a season, the superb specimens of plants, flowers, fruits, and vegetables; so superior were they, that it was a general remark, "This is the best collection of specimens ever brought together at a Meeting held in these rooms." It afforded a delightful proof of what not only can be done, but what had been accomplished by the skill and energies of both gardeners and nurserymen, as well as amateur cultivators.

The award of *Medals* was as follows: *New Plants.*—C 2, *Genetyllis fuchsioides:* Messrs. Henderson, Wellington Nursery. *Epacrises.*—S. B, Messrs. Veitch; C 1, Mr. Todman; C 3, Mr. Ingram. *Epiphyllums.*—S B, Mr. Fleming. *Camellias.*—S K, Mr. Higgs.

Indian Azaleas.—S K, Mr. Todman; S B, Mr. Fleming; C 1, Messrs. Rollisson. *Orchids.*—L S, Messrs. Rollisson; S K, Messrs. Veitch; S B, Mr. Woolley. *Chinese Primulas.*—S B, Mr. Green; C 1, Mr. M'Ewen; C 2, Mr. Chilman. *Single Specimens.*—C 1, *Epacris Hyacinthiflora:* Messrs. Veitch; C 2, *Eriostemon myoporoides:* Mr. Todman. *Late Grapes.*—S K, Mr. Forbes; S B, Mr. Clark; C 1, Mr. Snow; H M, Mr. Butcher, Mr. Ingram, Mr. Fleming, Mr. Jennings. *Early Grapes.*—S K, Mr. Forbes. *Pineapples.*—S K, Mr. Fleming; S B, Mr. Dodds; C 1, Mr. James; H M, Mr. Bailey. *Apples.*—S B, Mr. M'Ewen; C 1, Mr. Snow. *Pears.*—S B, Mr. Tillyard; C 1, Mr. Snow; C 2, Mr. M'Ewen; H M, Mr. Robertson, Mr. Bloore. *Forced Vegetables.*—S K, Mr. Ingram; S B, Mr. M'Ewen. *Forced Salads.*—C 1, Mr. M'Ewen. *Miscellaneous.*—C 2, Seedling Azalea: Mr. Fleming. C 2, Seakale: Mr. Fleming. C 2, Cinerarias: Mr. Todman. C 2, Brussels Sprouts: Mr. M'Ewen. H M, Design for a Winter Vegetable Garden: Mr. John Miller. H M, Model of a Rising Stage: Mr. Smith.

OF NEW PLANTS, Messrs. Veitch had a white-flowered *Calanthe* from Java, an *Oncidium* nearly related to *pubes*, and an *Ansellia,* not remarkable for beauty, from Natal. Messrs. E. G. Henderson showed *Genetyllis fuchsioides*, an Epacris-like plant with drooping, purplish-brown, bell-shaped flowers, about the size of an acorn, whose only fault was want of brilliancy; that may, however, improve as the season advances.

Epacrises: of these there were several collections, the best of which came from Messrs. Veitch. It consisted of *Hyacinthiflora candidissima*, *Vivid*, and *Fairbairni*. The next in point of merit was furnished by Mr. Todman, gardener to Mrs. Buckmaster. It contained *Hyacinthiflora*, *carnumbrata*, and *candida compacta*. Mr. Ingram, gardener to Her Majesty, at Frogmore, was placed third. The plants were seedlings of his own, remarkably dwarf and well bloomed. The most conspicuous among them was perhaps *Ingrami*, a very brilliant scarlet kind. There was also a striking variety of *grandiflora*, with bright purplish red tubes tipped with white. Mr. Fleming, gardener to the Duke of Sutherland, at Trentham, sent *candida compacta*, a very profusely flowered variety of *incarnata*, and a seedling called *ardentissima*. The last-named exhibitor also sent, all the way from Trentham, three nicely bloomed varieties of *Epiphyllum truncatum*, all of which, although most troublesome plants to carry, arrived in the most perfect condition, not a branch being broken or a flower bruised.

Camellias came from Mr. Higgs, gardener to Mrs. Barchard, and consisted of good-sized trees of *Donckelaari*, *fimbriata*, and the larger variety of *punctata*.

Of *Indian Azaleas* there were three collections of handsome plants, none of them very large, but all well bloomed. The first, from Mr. Todman, consisted of *optima*, which is one of the most brilliant of all *Azaleas; præstans*, and a rose-coloured semi-double kind. The second, from Mr. Fleming, comprised *refulgens*, a *pink seedling*, and another. The third group came from Messrs. Rollisson, of Tooting, and contained *elata*, *semi-duplex maculata*, which is one of the best of the half-double kinds, and *purpurea rosea*. Mr. Fleming also furnished two seedlings. No. 1 was a white ground flower, striped and mottled with pink; its fault was reported to be want of substance, which might be owing to the plants having been forced. No. 2 was not so good.

Of *Chinese Primulas*, the best came from Mr. Green, gardener to Sir E. Antrobus, Bart. These were *fringed white* and *purple sorts*, well bloomed. Mr. M'Ewen, gardener to the Duke of Norfolk at Arundel Castle, sent the second collection; and a third group was furnished by Mr. Chilman, gardener to Mrs. Smith, of Ashtead House, near Epsom.

Orchids were exhibited in great profusion, and in excellent condition. Messrs. Rollisson produced *Angræcum eburneum*, a magnificent specimen of this, when well grown, really handsome orchid, from the forests of Madagascar; a less conspicuous variety of it called *virens*, *Vanda suavis*, *Lælia superbiens*, with a noble spike of handsome flowers; *Leptotes bicolor*, quite carpeting the whole top of the pot with flowers; the White Butterfly plant (*Phalænopsis amabilis*). Messrs. Veitch sent *Barkeria Skinneri*, *Oncidium Cavendishi*, *Angræcum eburneum*, *Ansellia africana*, *Cœlogyne cristata*, a most useful winter-flowering species. Mr. Woolley, gardener to H. B. Ker, Esq., sent *Epidendrum rhizophorum*, a species with apricot-coloured flowers, like those of *cinnabarinum*, a colour so rare among orchids; *Phalænopsis amabilis*, *Epidendrum Skinneri*, *Calanthe vestita*, the yellow-eyed variety, which is not near so handsome as the crimson-eyed sort, *Angræcum virens*, and a prettily flowered plant of *Cypripedium insigne*. From Messrs. Jackson, of Kingston, came a collection consisting of one of the best varieties of *Lycaste Skinneri*, the somewhat rare orange-coloured *Calanthe curculigoides*, the pretty *Odontoglossum membranaceum*.

Of single specimens, Messrs. Veitch showed *Epacris Hyacinthiflora*, and Mr. Todman had a good plant of *Eriostemon myoporoides*.

Miscellaneous subjects of exhibition consisted of the following:— A collection of plants remarkable for fine foliage from Messrs. Henderson, of Pine-apple Place; a similar group from Messrs. Henderson, of Wellington Road; this contained seven kinds of *Anætochilus*, viz., *setaceus*; and *setaceus-cordatus*, darker shaded than the former; *setaceus-intermedius*, a dark purple colour; *setaceus-Roxburghii*, a greenish-purple; *Lowii*, green; *Lobbii*, dark green; and *xanthophyllus*, with pure golden midribs and veins; *Lachenalias* and *Cinerarias* from Mr. Todman; *Acacia dealbata* from Mr. Higgs; Lambert's Cone Apple, a sort resembling a small Cockle Pippin, from J. Disney, Esq.; two seedling Apples from Mr. Smee, nurseryman, Halstead; a dish of Cuthill's Black Prince Strawberry, from Mr. Brown, of Waltham Abbey; seedling Potatoes of 1851 from T. L.

Popham, Esq.; Brussels Sprouts, remarkably fine specimens, from Mr. M'Ewen; *Holcus saccharatus*, in a green state, and bearing seed, from Mr. Ingram, of Frogmore; also dried stalks of it and a sample of its fibre from Mr. Henderson, of Kingskerswell. A root and figure of the Potato Yam (*Dioscorea Batatas*), from M. Decaisne, were also exhibited. The root was about the size of a well-grown Parsnip, but, unlike that vegetable, in this case the thick end is that which pushes its way into the ground. It can only therefore be grown with advantage on ridges, and in deep light land; when first taken up this root was said to weigh about 3 lbs. A model of a rising stage came from Mr. Smith, of Hunmanby Hall, near Scarborough, Yorkshire. The shelves in this contrivance were moveable, and were susceptible of being raised towards the glass with the plants on them, or lowered at the will of the cultivator. It was considered that it might be useful in certain cases, more especially if machinery could be applied as the moving power instead of manual labour. Mr. Miller, gardener to Sir W. Smith, Bart., of Eardiston, sent a plan of a span-roofed pit or vinery, 120 feet long and 15 feet wide, heated with hot water. This house is used as a vinery in summer, and as a kind of vegetable garden, *i. e.*, a place for raisng forced vegetables, and keeping plants in, in winter, means being provided for turning the tops of the vines out of doors during that season. It was thought to be worthy of commendation on account of its apparent simplicity of construction and general usefulness. Mr. Munro, gardener to Mrs. Oddie, showed a boiler for a hot-water apparatus, together with a plan of the same. It was a square box, about a foot or so deep, filled with flue-pipes. It exposed a large surface to the action of the fire, and appeared to be altogether good in principle; the inventor was, however, recommended to try it in some public garden where attention could be called to it, and a report of its working capabilities obtained. Finally, on the walls of the meeting room were suspended the drawings of *Wellingtonia gigantea*.

From the garden of the Society came, among other things, an example of a wild Hyacinth from Cabul. It was stated that this, which is little handsomer than a common Blue Bell, was in all probability the parent of the beautiful Dutch Hyacinths now cultivated so generally. Also several fine kinds of Begonias.

ON CLIMATE AS AFFECTING PLANTS.—Valleys to be perfectly adapted for growing exotic plants must not be circumscribed, especially if traversed by a river or stream. No spot can be less fitted for conducting the more refined parts of floriculture than a narrow valley through which a river flows, as the constant exhalations from water are calculated not only to saturate the leaves and branches of plants, but, by remaining in the lower stratum of the atmosphere during a frosty night, in many instances occasion all the consequent destruction. All who have had an opportunity of observing the injury sustained by plants in dales from a slight hoar frost, must have noticed that, in those districts which were above the low lying vapours, similar plants have wholly escaped its effects. This simple circumstance casts much valuable light on the subject of cultivating somewhat tender plants, as well as an early destruction of flowers towards the end of summer. Wherever water exists, it has a constant tendency to lower the temperature; and the vicinities of places wherein it abounds must suffer the greatest reduction of heat. The sea may, however, be considered an exception to this, since its immense and continuous expanse of water retains, through winter, a higher temperature than the superincumbent and surrounding air. Plants growing within a few miles of the sea coast (at least of that portion of it which is not swept by the icy blasts from colder regions) may therefore be presumed to enjoy an increased degree of heat at that season, on account of the incessant radiation from so large a body. On the other hand, by absorbing more rapidly than land the superior heat of the atmosphere, it materially reduces the temperature in summer, and thus maintains a comparative equability. With rivers and all smaller channels of water it is wholly different: the mists which are perpetually arising from them are confined between two ranges of hills, and having no room to disperse, are condensed and precipitated to the earth in cold evenings, and by their deposition upon plants, affording, as it were, an attraction to frost, subside into globules of congealed fluid, the mischief occasioned by which is soon exhibited, after the first action of the sun. But where the valley occupies a broad district, these vapours, possessing, like heat, a diffusive power, are dispersed through even its most remote parts; and their density, with its concurrent effect upon vegetation, is proportionately lessened.

BRIEF REMARKS, &c.

THE SUGAR-CANE.—The sugar-cane grows spontaneously in all the South Sea Islands, and more than *ten varieties* are indigenous. It has been stated, that the best canes now cultivated in the West Indies are those taken there by Captain Bligh. In their native islands they grow remarkably fine. I have frequently seen canes as thick as a man's wrist, and ten or twelve feet between the roots and leaves. The *Iromotu*, a large yellow cane, and the *To-ura*, of a dark red colour, grow very large, and yield an abundance of juice; but the *Butu*, a small, light red, long-jointed cane, with a thin husk or skin, contains the greatest quantity of saccharine matter.

METHOD OF FLOWERING HYDRANGEAS BLUE.—In July, 1853, I took some plants out of the pots, shortened their roots, and shook the soil from them; after which, I repotted them in others, which held four quarts of soil each, and, adding four ounces of pounded alum to each pot of soil, mixed them well together. In the spring of 1854 the plants began to show their flower-buds, which were tinged with a fine light but *rich blue* colour; the plants grew fine, and flowered to very great perfection; they were kept in the greenhouse the whole of the winter and spring, indeed until they had done flowering. The soil was a light sandy loam.—*W. Moore.*

ON THE PROMEGRANATE. *Planting and Situation.*—The single and double Pomegranates are hardy enough to stand in the open air of most parts of the south of Britain, and in such situations flower freely, when the trees have attained a good size, and are of several years' standing; but, to plant with the view of obtaining fruit, they should be accommodated with the warmest and most sheltered spot the situation affords, and always against a south or south-east wall. *Soil.*—A strong, rich, loamy soil is considered the most proper for such trees as are grown within the limits of large pots or boxes; but a lighter and poorer soil, upon a dry subsoil, will be more suitable to trees planted in the open borders, as having less tendency to cause *excess of growth in the shoots*, which would be but *imperfectly ripened* in autumn; it is essential to success that the new shoots be perfectly ripened, to fit them for producing flowers and fruit in the following season.

FLORAL OPERATIONS FOR MARCH.

The summer display of flowers, both in the flower-garden and greenhouse, principally depends on the preparations made in reference to a *suitable supply* of plants during February and March, especially so where there is much of the summer bedding system adopted. In order to have a bed *fully* ornamented with *flowers*, it is *absolutely necessary* to plant *thickly* at first, and if it turns out that after a while they will bear thinning out, that is readily done, and the surplus ones will do for other places, or striking, if required. When a bed is *thinly planted*, it has, in almost every instance, a miserable appearance throughout the summer. We advise that an *abundance* be provided, and, if possible, be rather beforehand with it in quality and time, so that the stock may be vigorous and *bushy*.

Flower Garden.—*Auriculas* and *Polyanthus* must have air freely to keep them robust, but protect from wet lodging in the hearts. Give manure-water twice a week; sheep's dung put into a tub with soft water (or old rotted cow-dung will do), to form a strong liquid, is very beneficial. Collect the dung a few weeks before using. If the plants show too many blossoms in a truss, thin them properly immediately. *Anemones* and *Ranunculuses* must be finished planting immediately. (See articles on culture in previous numbers.) Such as were planted in autumn will now be pushing through the soil; it is very necessary to keep the soil *closed firmly* round the plants, if neglected the bloom will be injured.

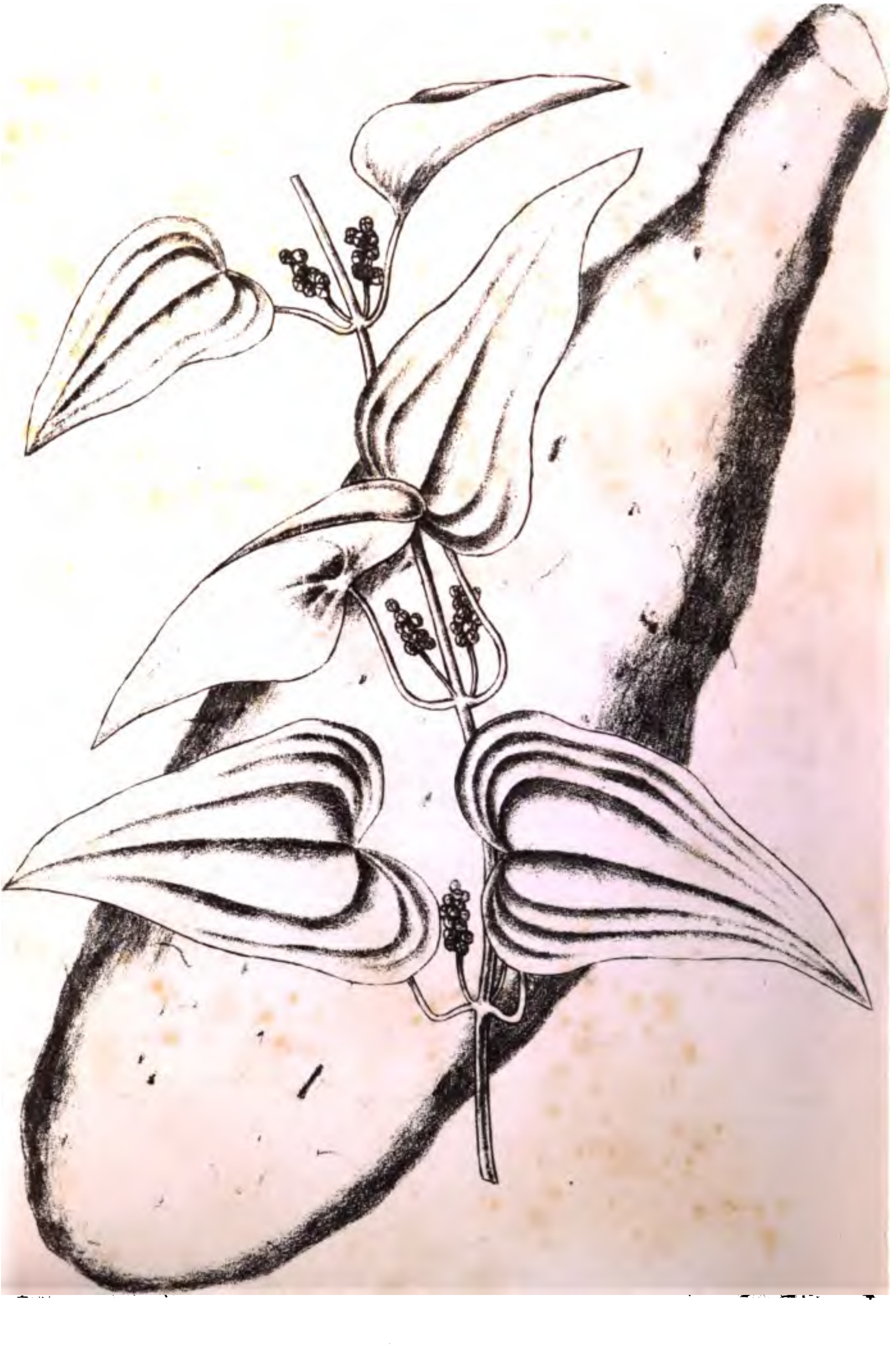
Annuals.—If the weather permit, sow seeds of some of the *hardiest* in dry borders. *Half-hardy* and more *tender* kinds sow in pots, or mild hot-bed. After sowing, shade from sun, and take care the surface soil is constantly kept *just moist*, till the plants push, for if the seed be *somewhat softened*, and then allowed to become *dry*, it will be destroyed. If the frost continue and prevent sowing the hardy ones in the border to come into bloom early in the season, then sow some in thumb-pots, and place in a frame or elsewhere, from frost, and turn them into the borders *entire*, as soon as circumstances admit. *Mignonette*, sow in pots, in order to turn out entire into *boxes;* sow thinly, pull up all but four in each pot, and when strong enough put them into the boxes, filling up between the balls. Provide for a succession of boxes, to supply them good till autumn.

Pansies in *pots* should be repotted into those they are to be exhibited in at the *Show*, and pinch off the present flowers, whether in or out of bloom. A rather strong loam, well enriched with *old, dry cow-manure*, and a *free* drainage are essential to success; also twice a week give a *root watering* of liquid manure. *Pansies* in beds, also *Pinks*, should have the soil firmly pressed round the plants for a few inches, and protect from wind by fir, yew, or whin branches, etc., round the bed. Give the beds a top-dressing of rich loam. *Pinks* not planted last autumn should be put in beds immediately, with entire balls. *Carnations* and *Picotees* are liable to the attacks of *mildew*, the leaves being spotted; dust them *over* and *under* with sulphur.

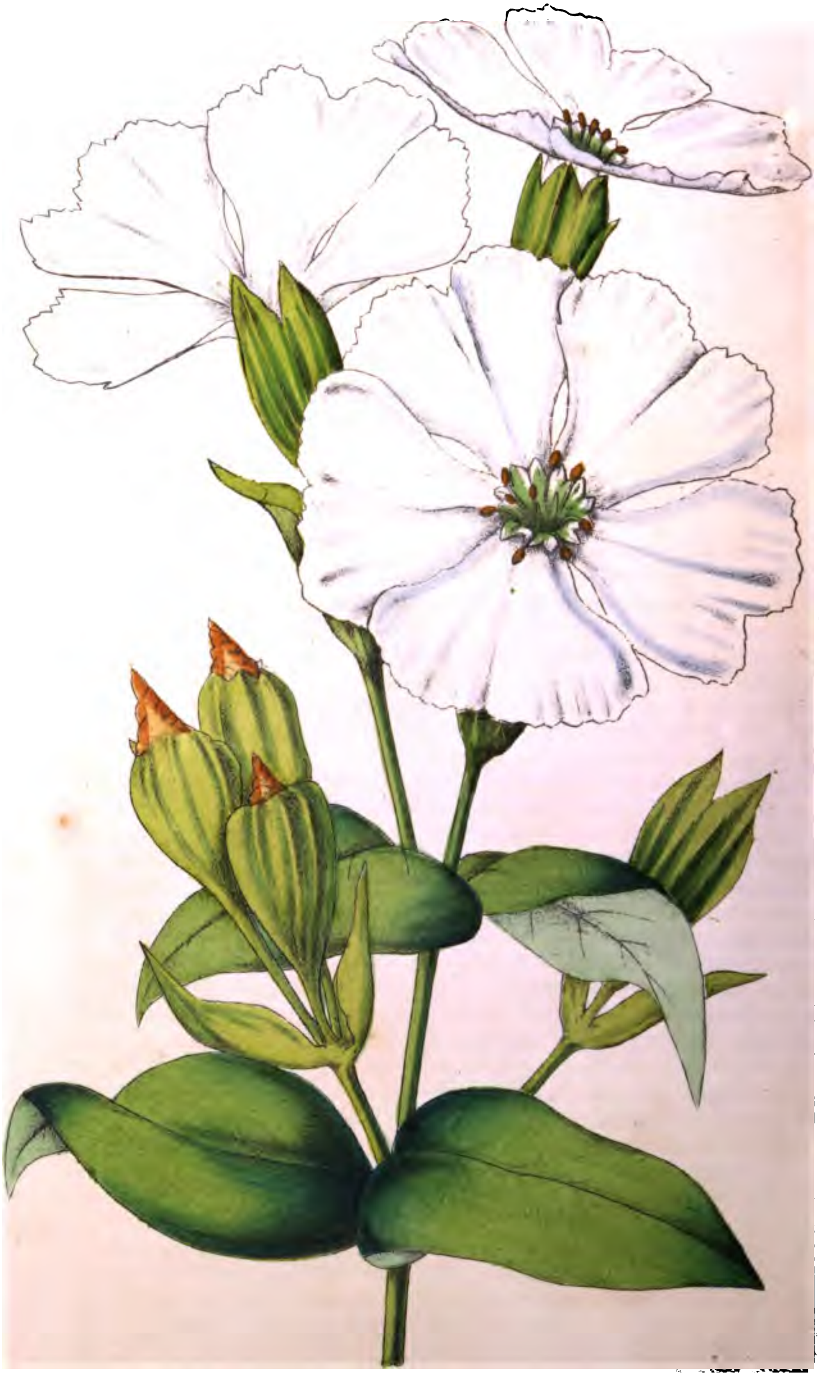
At this time of the year is the *trying season* with carnations; protect them from *cutting wind* and *excess of wet*, but give air freely on all proper occasions. Towards the end of the month pot off the plants into their blooming-pots (No. 12 is the usual size), and in each put two, three, or four plants, as the usual growth of the variety points out. Use the following compost:—To two bushels of good, fresh, yellow loam, and three of *well-rotted* horse-dung, add half a bushel of river-sand, mix them (not sift) well together. Give two to three inches of drainage over the broken pot or other material; spread a thin layer of moss, to prevent the soil filling up between the crocks. Place the plants where they will have a free current of air, but not in a *windy* situation. *Lilium lancifolium* and its varieties must be potted or planted in the open ground. (See articles in previous numbers.) *Phloxes* divide, and if in pots turn out into the border; also any other *hardy herbaceous* plants divide and replant. Plant out, too, the *biennials*, such as Sweet Williams, Scabious, Canterbury-bells, Wall-flowers, etc. *Sweet Violets*, take off runners and plant in frames or beds for *next season's* supply of flowers. (See previous articles.) *Hollyhocks* in pots turn into border towards end of month, in *deep, rich*, loamy soil, on a dry bottom. *Chrysanthemums* to bloom in the open ground, or which are to have their branches layered in sunken pots, in order to form dwarf flowering plants, must now be turned out of pots into the open ground, in a *rich* soil. Put in cuttings now for *pot* culture, one cutting in each thumb, or sixty-sized pot. *Bedding plants* (as Geraniums, Petunias, etc.), cuttings in pots should be potted off singly; stop the leads to make them bushy plants. Protect beds of *Tulips, Hyacinths, Ranunculus*, and *Anemones*. If any of the plants push floral stems, tie them to sticks to prevent their being broken by winds. The soil must be pressed firmly round the plants. If the frost penetrate so deep as to reach the young embryo flowers of the *Tulips* or *Hyacinths*, and care be not taken in thawing gradually, they will either be wholly destroyed or damaged to some extent. If any Tulip-bulb be affected by canker, the plant will appear sickly; examine it carefully and cut the cankered part clean out, then allow it to dry before filling up. If the foliage even be affected by frost, slightly sprinkle it wholly over with cold water in the morning, shading it for an hour or two from sun, then fully expose it.

GREENHOUSE.—*Cinerarias* must be put in their blooming-pots; water freely, and once a week give liquid manure, and fumigate about once a fortnight, or green fly will prevail. *Chinese Primroses*, give a liberal supply of water; twice a week give manure-water, and the flowers will be of much brighter colour. *Calceolarias*, repot into blooming-pots; let them have all the air possible; only preserve from harm by frost, and fumigate once a fortnight. *Fuchsias*, repot; and now begin to train and form them, the pyramidal shape is the best; standards, with large heads, are pretty. *Pelargoniums*, train and arrange the branches of the large plants. Such plants as are desired to bloom after July must have the leading shoots stopped *now*. Give liquid manure to the large show specimens every third watering. Syringe over head twice a week with soft water. Almost all young plants potted in autumn, or recently from the cuttings put off in autumn, will require the leading shoot to be stopped, in order to have bushy plants. *Tender Annuals*, as *Salpiglossis, Globe Amaranthus, Balsams*, etc., for ornament in summer, now pot off singly. *Camellias* done blooming, promote their growth, and put in cuttings of the single flowers for grafting. *Chrysanthemums*, pot off cuttings, and pot off autumn-struck ones; pinch off the leads. *Green Fly*; fumigate, or dip over head in strong tobacco-water; any plant attacked do not delay. Pot *Tuberoses*, or plant out-doors, in front of a warm wall.

FORCING STOVE.—Sow seeds of *Dahlias, Fuchsias, Thunbergias*, etc., also *Chinese Primroses* for plants to bloom next autumn and winter. Pot off singly any sown last month. Pot or repot, *Amaryllis, Achimenes, Gloxinias, Gesnerias*, etc. *Ipomeas, Echites*, and similar plants, must be trimmed in, disrooted when necessary, repotted, and be brought in for exciting early growth. *Ixoras* and other plants for *exhibitions* must be duly attended to in tying out, etc. Keep the plants as near to glass as convenience admits. Repot, prune, etc., any others now requiring it, to secure their blooming this year. *Syringe over head* the entire stock every afternoon, about half an hour before the rays of the sun leave the house, shutting up close before doing it. *Æschynanthus*, etc., for suspended baskets, should now be placed therein. See last month's Floral Operations, which have also reference to many plants that now require attention.



DIOSCOREA BATATAS.



Lychnis Sieboldii.

The Floricultural Cabinet.

APRIL, 1855.

ILLUSTRATION.

LYCHNIS SIEBOLDII. Syn. *L. grandiflora-alba.*

THIS charming *perennial* plant is one of the numerous importations of the celebrated naturalist Von Siebold, who discovered it in Japan, and sent it to the establishment of M. Van Houtte as a *variety* of *Lychnis grandiflora*, but having blossomed in M. Van Houtte's collection, he has discovered it to be a *distinct species*, and has therefore named it after its discoverer. The *Lychnis grandiflora* is quite smooth, but *Lychnis Sieboldii* is *pubescent* (downy). The flowers of the latter are larger, and the *surface* of the petals is *quite even*, not *crimpled* or *channelled*, as those of *L. grandiflora* are. The outer edge of the flower is *slightly notched*, whilst that of *L. grandiflora* is deeply *toothed* or jagged. The blossoms of *L. Sieboldii* are much superior to those of the other species in form, neatness, and showy character. The Japanese cultivate it as a very ornamental plant, in contrasting it admirably with the brilliant orange flowers of *L. grandiflora.* In habit it resembles the latter, growing from one foot to one and a half high, and forms a good companion to it. It is a handsome plant for the greenhouse, as well as an excellent plant for a small bed in the open ground, its large, pure white, neat flowers producing a striking contrast with the rich coloured of other plants. It is beautiful when grown singly, too, in the flower-border. It is readily increased by division, and easy to retain and cultivate. M. Van Houtte purposes to send out plants immediately. It merits a place in every garden.

MANAGEMENT OF THE INDIAN AZALEAS.

BY MR. THOMAS GREEN, A SURREY GARDENER AND EXHIBITOR.

OBSERVING that very little is said respecting the cultivation of greenhouse Azaleas throughout the pages of your invaluable periodical, and conceiving there is some little ambiguity in the mode of treating them as stated by some of your correspondents, I have presumed to send you an account of their treatment for insertion in your interesting and instructive Magazine.

As soon as the plants have done flowering, if shifting is necessary, prepare some compost mould for them in the following proportions: two-thirds bog earth, one-third well-decomposed tree-leaf-mould, and one-twelfth sharp silver sand; they must not be sifted, but well chopped and broken with the spade; any lumps remaining may be broken with the hand. Having a pot a size larger than the one the plant to be shifted has been growing in, and washed clean inside and out, then proceed to pot the plant, taking care the drainage is well attended to, for upon this depends in a very great measure the success of the plant. In potting, I think it an advantage to place the centre of the ball rather lower than the mould at the outside of the pot, and form as it were a little basin inside, as by this means the whole mass of roots is benefited by the water given from time to time; and if the drainage is effectually performed, the water will pass through as freely and quickly as when the plant is potted high in the pot. The plants being potted, place them in the stove, where attention must be paid to watering when necessary. They will be very much benefited by being syringed all over at least once a day; and in sunny days they will require to be syringed three or four times each day. With this treatment they will grow amazingly, and in the course of six or eight weeks will have made shoots from three to nine inches in length. They must be kept in the stove till the flower-buds for the ensuing year have attained the size of a small pea, which can easily be ascertained by feeling the ends of the shoots; they should then be placed in the greenhouse for ten days or a fortnight to harden, when. if the weather is suitable, they may be placed out of doors in a cool airy situation, till the time for taking in the general stock of greenhouse plants.

Where the plants have bloomed so profusely as almost to exhaust them, tie some moss round the principal stems, and keep it constantly moist; this will cause them to break regularly and grow freely.

Where there is not the convenience of a stove, I recommend that the plants be kept in the greenhouse till the buds are well set; and should this happen so late that there are but two or three weeks for them to have the advantage of the open air, still setting them out will be found highly serviceable.

If the foregoing particulars are attended to, the roots will be produced in such abundance as completely to *fill the pots;* and instead of being liable to perish from *over-watering*, it will be almost impossible to give them enough, the close mass of thirsty roots absorbing an almost incredible quantity of moisture. Treated as above described, all the species and varieties of this splendid tribe will answer the most sanguine wishes and expectations of the cultivator, and I think it is impossible to bloom some of the sorts properly under any other mode of treatment; instead of producing here and there a flower, as is often the case, the plants will be one entire mass of bloom, expanding their brilliant and beautiful flowers from two and a half to three inches or more across, and commanding the admiration of all who behold them. Where it is required, and the stock of plants is sufficient, the blooming season may be protracted from September till June.

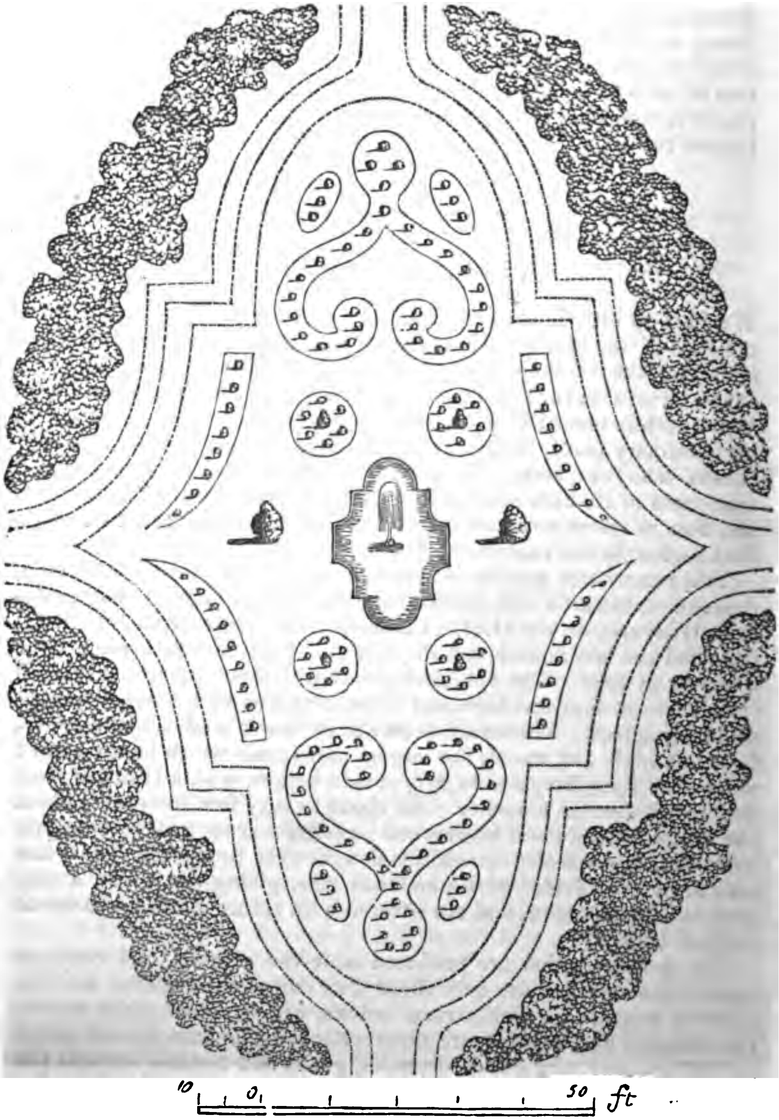
CEREUS GIGANTEUS.

We have to introduce to our readers' notice the discovery of another monster of the vegetable kingdom in California, which, although not equalling the *Wellingtonia gigantea* in magnitude, is certainly the GIANT OF ITS TRIBE; it belongs to the genus *Cereus*, and has been appropriately named *C. giganteus*. A drawing has been given of this extraordinary plant, from a sketch by Mr. George Thurber, the only person who has seen it in flower, although Dr. Parry forwarded specimens of its bark and spines. Mr. Thurber travelled to the Gila and Sonora rivers, as a member of the expedition charged to explore that region, in the summer of 1851.

This remarkable species is found to the north of the river Gila, descending towards the south to the Sonora, at about twenty miles from Guaymas, on the Gulf of California. Mr. Thurber, in July, 1851, collected the last flowers and the first ripe fruit, and gathered a large quantity of seed. The youngest plants which he observed measured from three to four feet high, and were furnished with narrow furrows and long spines. The smallest plants in flower were about twenty-four feet high, and among the largest individuals which he discovered were *some from forty-five to fifty feet* in height, with a trunk of from five to six feet in diameter. At about twenty feet from the ground the trunk divided itself into several large erect arms, which were again branched, towards the extremities flowers were produced. The trunk and arms are divided with numerous ribs, giving the whole a very grotesque appearance, and are covered with spines about a quarter of an inch long.

The flowers, which are produced near the summit, and continue open night and day, are only about four inches in diameter, and the same in length, of a light cream colour, with greenish-white sepals; the stamens and anthers are clear yellow. The fruit is oval, about two inches long, and one in diameter, green and reddish towards the summit.

DESIGN FOR A FLOWER GARDEN, BY T. RUTGER, ESQ.



The above design, it will be seen, is enclosed within a shrubbery which is bordered with a grass verge. There are four entrances in the plan, but if preferred, an alcove or covered seat may be placed at one of the ends. A pond with a fountain occupies the centre. The beds are laid out on grass.

MANAGEMENT OF BALSAMS.

BY MR. JAMES MAYOR, SUMMERFIELD HOUSE, BOWDON, MANCHESTER.

HAVING met with considerable success in the cultivation of this very beautiful annual, perhaps the particulars of the system may be useful to some of your readers. But before we proceed to detail the matter, probably a few general observations would be advisable, as very important matter is often omitted when we confine ourselves to the bare rules of potting and watering, and although these two operations constitute the grand basis on which the life of the plant depends, yet there are other seemingly trivial matters which materially assist in the elaborate development of the same. This annual is within the reach of all, and those who have convenience may expect to reap a tolerable amount of success by adhering to the method laid down.

But a very short period since, the prevailing opinion in reference to the amount of heat required was, that the temperature in which they could alone be expected to succeed should be considerably higher than that of our ordinary forcing-houses; this, to a certain extent, is quite erroneous, although we cannot contradict the fact that they will grow amazingly in the before-mentioned temperature, if a corresponding amount of light and moisture be supplied. By this system they are by no means so handsome in habit, nor, in consequence of the rapidity of growth, are they so durable. Being of a highly succulent character, the great excitement appears to rob the plant of its native capabilities, and as a consequence to render it unfit for the purposes it was primitively intended for. We would rather sow earlier than hasten the plants by an unnatural degree of excitement; by a gradual system of growth they become bushy, and, even in the absence of flowers, are very interesting objects to look upon. It is the practice with some growers of this plant to take away the flowers as they appear, and pinch the extremities of the shoots until the plants arrive at the desired dimensions; this, however, in the course of our treatment, we have never been obliged or disposed to do, inasmuch as the highly nutritive character of the compost used dispenses with such operations, by retarding the formation of flowers, and producing lateral shoots wherever there is a possibility for their emission. Every precaution should be taken to prevent the roots from becoming matted, before the plants attain the size desired; also that the soil does not become dry, as repeated occurrences of this kind would very naturally have the same tendency as an insufficiency of room for the roots. Throughout the whole proceedings they should be slightly shaded during bright, sunny weather; but in other respects in as light a situation as it is possible to give them. The amount of atmospheric moisture must, under all circumstances, depend upon the temperature of the house, or other structure of which they may be occupants.

Two sowings of seed are made, the first in the beginning of February, the other a month later, in flat pans, well drained; the compost consisting of equal parts of leaf-mould and thoroughly decomposed dung, with a little turfy loam, all well broken and incorporated. They are put into a slight hot-bed, where they remain until the plants are large enough to be transplanted singly into four-inch pots; they are put back again into the bed until they become a little established in the pots, when they are removed to an intermediate house, where, placed near the glass and receiving due attention, they soon make nice specimens. When considered large enough, there must be no more repotting, but give frequent and copious doses of liquid manure, which will add greatly to the beauty and size of the flowers; when in flower, they may be safely transferred to the conservatory, where they will long continue to exhibit their beautiful camellia-like blossoms.

FLORA OF JAVA.

This is my second visit to Java. I came down at first about three months ago to arrange all this matter, and I then returned to Singapore for my family; we landed here this morning. We are in capital quarters, in the house of a Dr. Burger, who is one of the Directors of the Company; he was formerly for many years attached to the Government Natural History staff, and was with Van Siebold for a long time in Japan, of which his reminiscences are very interesting; he is a botanist, too, as well as a zoologist, so we get on famously. When here before, having to remain six weeks, I took the opportunity of going up to the mountains. I first spent several days at the Botanic Garden at Buitenzorg; the sub-curator, Mr. Bennendyk, is a good botanist, and was very kind indeed in showing me everything. I had the opportunity of seeing the new *Rafflesia (Brugmansia) Zippelii* in spirits, and of examining fresh fruit of *Azolla* and *Salvinia*, and of studying a noble collection of Orchids and Palms. Of the latter the collection is very numerous; but though I knew sixty at Labuan, I only recognised about a dozen of them here. How many Palms exist in these wonderful countries who shall say? After seeing the garden, I made a trip into the mountains, remaining nearly a week at Ivegoe, about 4000 feet above the sea. I think, had you been with me, you would have almost gone crazy, as I did, at the Cryptogams; every tree, from leaf to branch, was covered with Mosses, *Hepaticæ*, and Lichens, to say nothing of Orchids and Ferns. No words can express the beauty of the jungle. The most productive places, however, I found to be the old coffee plantations, where the scrubby crooked trees were almost borne to the ground by the weight of parasites. Here a great epiphytal *Ficus* or *Fragræa* mounted on high, far thicker and stronger than its supporter; and there a perfect blaze of scarlet *Æschynanthus*, streaming down from the huge matted tufts of *Asplenium* or *Acrostichum*; ship-loads of *Vanda speciosa* and *odoratissima*, *Saccolabia*, *Dendrobia*, *Epiphia*, any one of which would have carried off all the prizes at Chiswick, and sent all the gardeners into fits; and in every damp hollow groves of *Dicksonias*, *Alsophilæ*, and *Marattiæ*, some rising forty or fifty feet, whose marvellous elegance and beauty, swept by the wind, neither pen nor pencil can tell. *Aroideæ* are in great force, and of very various forms, as are also parasitical *Rhododendra*, *Thibaudiæ*, and such plants. *Melastomaceæ* are very prevalent here, especially the genus *Medinella;* most of them are semi-parasitic trailing plants, and hang in great masses from the trunks of the trees. But the *Mosses* and *Hepaticæ* enticed me most, for these I could collect; while it was impossible, in my hurried trip, to dry other plants. Some of the pendent *Hepaticæ* and *Neckeræ* are a foot or more long; the effect of large masses of them is most beautiful, especially intermixed as they are with long bunches of the white *Usnea*, like *U. florida*. I believe I have collected about two hundred species of *Hepaticæ*, *Musci*, and *Lichens*, and the greater part of them in fruit. I shall be able, I think, to make from twenty to thirty sets of them, when I have time to open them; at present I have just dried and packed them up in a box, which it will be several months before I am able to attack: you shall receive some early specimens when I do get at them. The natives here are very capital, intelligent fellows; I had three of them with me each day, with baskets, for which I paid one rupee, or about sixteen pence, and they seemed quite delighted. They soon found out what I wanted, and I owe many of the specimens in fruit to their sharp eyes. When I found a species barren, I just showed it them and told them where I expected to find the fruit proceeding from, and they rarely failed to find it before long; they seemed, too, to identify themselves so with the matter, and showed such emulation as to who should be the first to find something new, it was quite pleasant to be with them. I might have fancied myself among botanists; these mountaineers, however, are botanists to an extent you would hardly expect amongst so-called savages. Every plant has its native name, and given upon the system of generic and specific names; for instance, when I asked a man the name of a little *Pavetta*, he said at once, "I never saw this before, and I don't know its own name, but its 'mother name' is so and so," mentioning the native generic term for *Pavetta ixora* and such plants in general. The authors of the catalogue of the Buitenzorg Garden have thought these names worth recording, and I think they are right; for I saw many plants I should not have seen, especially among the *Ericeæ*, but by asking for them by such names given in the catalogue; and it is wonderful, on looking these over, to find how well the system is carried out. It is of course imperfect, but remarkable for people with no written language: they do not speak Malay or Javanese, but a peculiar dialect called Sundanese. When I was tired of Ivegoe, or rather when I had spent as much time as I could afford there, I went on about twenty miles farther to Chepanas, where there is a regular European garden, to supply vegetables for the Governor's table. It was pleasant enough to see their beet and lettuces, etc., growing very finely. There is a pond, also, with some *Salix Babylonica*, but they look miserably, as do the European fruit-trees, though they seemed to grow pretty quickly. The Plums appear to have most of the true flavour. The Apples certainly attain the most perfect colour, and the Peaches, though they have a pretty good appearance, are said to be quite tasteless; the fact is, the trees get no rest, so as to ripen any true bearing wood. The Apples grow with long and ever-lengthening shoots, more like osiers than their brethren in Europe. At this place, which is in the midst of the plateau of the Preangu district, about 4000 feet above the level of the sea, you have quite an Italian climate, and it is cold enough at night to make a blanket pleasant. It takes its name, Chepanas or "hot-river," from a warm spring close to the Governor's house, where there is a convenient bath, very pleasant after a hard day's walking. There is a small botanic garden here also, where they have a good many Japanese plants; but the most remarkable objects are two specimens of the Norfolk Island *Araucaria*, perhaps sixty feet high, young trees, but in a state of health and vigour which promises well for the future.

From Chepanas I made my last and crowning trip to the top of the Pangernogo Mountain, about 10,500 feet. I cannot pretend to tell you all the plants I saw; but you, who have never experienced the sensation, cannot imagine how odd it was, all at once to get again among forms such as two species of *Viola*, three *Ranunculi*, three *Impatiens*, *Primula*, *Hypericum*, *Swertia*, *Convallaria*, *Vaccinium*, *Rhododendron*, *Gnaphalium*, *Polygonum*, *Digitalis (?)*, *Lonicera*, *Plantago*, *Artemisia*, *Lobelia*, *Oxalis*, *Quercus*, *Taxus*, and about a dozen species of *Rubus*,— all beautiful plants. *Primula imperialis* only grows near the summit: it is a charming species, the leaves like *P. vulgaris*, with an interrupted verticillate spike, sometimes three feet high, very ornamental. Up among these plants, amid the moss which hangs on the trees in masses as big as a man's body, are two very fine parasitical Orchids, a *Dendrobium* with bright purple flowers, *D. purpureum*, and a little pseudo-bulbous plant with large flowers, like a *Cymbidium*; and yet these plants, often exposed to 36—38 deg. Fahr., we should perhaps put at home into an orchideous stove at 85 deg. Fahr. and then be surprised when they died. I was much astonished at the distribution of plants of this tribe. I have often been puzzled why I did not get more species at Labuan, and in other steamy hot places, down at the sea-level, where I believe most of the English botanists would hope to find them: whereas at about 4000 feet, at a night temperature of 45 to 50 deg., every tree is laden with them. Surely we are in the habit of "*coddling* them" (to use a Yorkshire word) too much in our stoves: when it is considered that a change of plan would bring these lovely and curious plants within reach of many zealous cultivators, who cannot afford the expense, it would surely be worth some nurseryman's while to try the experiment, on a large scale, of cooler houses for Orchids. I remained one night on the top of the mountain; it was exceedingly cold. I had forgotten to bring up a thermometer, but water was frozen in a plate raised a couple of feet above the ground. There are plenty of excellent strawberries here; they have of course been planted, but, so far as fruiting is concerned, seem quite at home. I did not, however, see one stolon thrown out. They grow with scaly stems in tufts, just like *Dryas octapetala.* I saw nothing the evening I got up, as all was enveloped in a wet searching mist, but in the morning I was amply repaid for my trouble. The summit of the mountain, evidently an extinct volcano, is a sort of amphitheatre, about 500 yards in diameter, broken through on one side by a deep narrow ravine. This space has been cleared, and is chiefly covered with strawberries; for the apples and other European trees planted there are so covered with foliaceous Lichens, that they can hardly vegetate. The forest of crooked stunted shrubs, chiefly Ericaceous, extends to the very verge of this amphitheatre outside. At sunrise I climbed up to the ridge, and for half an hour had an uninterrupted view. I could see the sea to the north and south of Java, and in the distance, to the south-east, chain upon chain of mountains, ending at the sea, with the smoking summit of Janykuban-prahu, which has, within a few years, been very active. A heavy haze hung over Bulana, so that I could not see it; but nearer to me, on both sides, I looked over miles of cultivated country; the system of *sawah,* or wet rice cultivation making the country look half lakes and rivers. Nearer to the north-west, within about thirty miles, rose the jagged peak of the Salac, one of the best botanical mountains in Java, now all green and still, though some seventy years ago it committed fearful havoc, and destroyed many lives; and to the south, almost under my feet, gaped the white barren crater of Gédé, another peak of the mountain on which I stood—a slight smoke rising out of the unfathomable depths, to testify that, though slumbering, the fire king was not yet dead. You cannot conceive anything more sublime than the bare walls of lava and the banks of white pumice, furrowed by the rains into deep ravines, and the wreaths of blue smoke curling up in the sunrise, with the dark primeval forest creeping up in places to the very edge of the abyss, or with countless dead grey branches silently attesting how different the scene may sometimes be. If you add to this the huge masses of boiling clouds rolling over the flanks of the mountain, now hanging at the very edge of the crater, and then sweeping rapidly down to the plains, the strange ashy aspect of the nearest trees, covered with pale Lichens, and the bright blue tropical sky and rising sun, you may perhaps imagine something of a scene which I can neither describe nor forget. I felt inclined to shout for joy, and I never even thought of the cold, until I tried to sketch, and found my hands so numb I could not hold a pencil. I did manage, however, to get an outline of the water. Coming down again was harder work than climbing up, and played the very deuce with my knees; but nevertheless, when I met Bennendyk half-way up, I was glad enough to turn back with him. We took a short walk that afternoon to see a thicket of *Rhododendron Javanicum* in flower. The plant is now, I believe, in England; and if it grows as it does here it is almost the finest plant in the gardens; its beautiful flame-coloured blossoms are in great bunches of twenty or more, and the colour is more dazzling than of any flower I know. I saw also two other *Rhododendra* (*R. rubriflorum*, a beautiful scarlet, and *R. album*) in perfection, both very free bloomers and very beautiful plants.

That night we remained in a small house on the mountains, and the next day we went up another peak, and also to see some cataracts; of these there were three, falling at the head of a gorge over a cliff, about a hundred and fifty feet high. There was a fine supply of water, but in time of rain it must be immense, judging from the quantity of stones and timber heaped below. The rocks covered with *Bartramia fontana*, a white *Sphagnum*, and a deep red Hepaticous plant, and with great patches of the broad leaves of the *Gunnera*, and a dark green Urticaceous plant, which seemed to rejoice in the spray and foam. Large bushes of *Acacia volcanica*, and a tall *Saccharum*, were scattered among damp stones covered with Mosses and *Hepaticæ*. I gathered a curious *Gyrophora* in fruit, on a dead fern trunk. The white *Sphagnum* I mentioned as abundant here, I saw in the course of a single stream only, which rose in a hot-water spring half-way up, where it was very abundant. Coming back I found a curious plant, *Campanumea Javanica*, a sort of climbing Campanula, with greenish flowers, veined like the henbane, and black pulpy fruit; it is a pretty plant. The enormous size of the leaves of the under growth of these dells gives a most peculiar character. *Gunnera*, *Caladium*, and *Musa* occupy large spaces, and are eminently social plants. I had this day the pleasure of seeing a Rhizantheous plant alive; it is a species of *Balanophora*, and grows nearly under ground, on the root of a *Cissus*. The thalus, or whatever you may call it, is slightly branched, fleshy, and glutinous, and is sought for by the natives, who dry and burn it for torches. Coming down, I had the pleasure of assisting in making the first plantation of Cinchona in Java, consisting of several hundred plants, which Bennendyk had come to plant half-way up the mountain. They are of the *C. calisaya*, known to produce the "yellow bark," the most precious of all the Cinchonas.—*James Mottley, Esq., in Hooker's Journal of Botany.*

POINSETTIA PULCHERRIMA.

BY A PRACTICAL CULTIVATOR.

During *winter* and *spring* the gay and brilliant *crimson and scarlet bracts* of this elegant plant are highly ornamental; many of their *large heads* are to be seen adorning the shops in the Arcade at Covent Garden, from whence they are quickly transferred by purchasers to the windows, drawing-rooms, banqueting tables, and ball-rooms. It merits a place in every collection of winter flowering plants. It is easily cultivated, and grows freely. The best method of propagation is by *single eyes* (as is done with vines), taken from the hard, well-ripened wood of last year, inserting them in *very sandy peat*, plunging the pot in gentle bottom heat, as a cucumber bed, and when rooted potting them singly, still retaining them in the frame till well established, then removing them into a medium stove, placing them *near the glass*. From the end of June to the beginning of September the plants should be kept in the greenhouse, and then be removed into the stove; being duly watered and otherwise attended to, they soon push forth their elegant crowning heads. The plant is rather liable to the attack of red spider, therefore the under sides of the leaves require to be occasionally and forcibly syringed; but after the bracts begin to colour syringing must cease, as the water would damage the flowers. Old cuttings in plants do not produce such fine heads as young ones do, it is best to strike some every year. The plant requires to have a very liberal drainage, and flourishes in equal parts of light loam, peat, and *old well-rotted* manure or leaf-mould.

CULTIVATION OF ANNUAL FLOWERS.

BY A NOBLEMAN'S FLOWER GARDENER.

OBSERVING in a recent number of the FLORICULTURAL CABINET that information on the best annual flowers and mode of management is solicited, I forward the following plain particulars on the subject, which I hope will be of some service to the inquirer, as well as to enable the villa proprietor, cottager, and small garden occupier to cultivate, for their own recreation and enjoyment, the *Popular Annuals* —a tribe of flowers surpassed by no others in the vegetable kingdom for fragrance, diversity of form, or beauty and variety of colouring; properties which are enhanced by the facility with which they may be grown, and the speedy return they yield to the careful cultivator, for while they may be procured for a trifling amount, they at the same time require less attention than their more permanent congenitors. Instead of waiting seasons, the owner is rewarded for the little requisite attention bestowed on them, in a few weeks; a period not only short, but rendered still more so by the pleasure experienced in daily beholding and contemplating their rapid progress, from the time their embryo leaves first appear, to that stage of existence when the profusion and loveliness of their bloom is sufficient to arrest the attention and call forth the admiration of the most careless observer of nature's beauties.

From those resident in and near large towns the annual flowers have a double claim to attention; for while they serve in summer to cover the small street-door parterre, and garnish the window-box and flower-pot with the most choice embellishments of the flower-garden, in winter the management necessary for perennials is dispensed with, which in such localities is peculiarly unpleasant, and the gloomy association of ideas is avoided consequent on daily beholding, in the herbaceous tuft of sickly leaves or withered flower-stalks, and the foliage-stripped branches of the deciduous, or the smoke-blackened leaves of the evergreen shrub, the decay of what once charmed the eye of the beholder.

In addition to the annual flowers, strictly so called, "which bloom and die in one short summer's space," there is another class of plants which annually compensate, by the beauty and delicacy of their bloom, the care necessarily bestowed on them by those who have in their gardens a small hot-bed frame or greenhouse, in propagating them in autumn, preserving them through winter, and re-transplanting them in May, again to embellish the flower-beds with borrowed brilliancy of warmer climes and clearer skies. To assist in the selection of these, I shall add a descriptive list of the most interesting and beautiful.

Culture of Annuals. In the course of my remarks I shall give some short directions for the culture of such as require any particular mode of treatment, but I consider the following general observations necessary for the guidance of the less experienced amateur.

The most *natural period* of sowing Annuals is in the latter end of autumn, when they, as well as most other plants, burst from their capsules, and distribute the seeds in various ways; therefore, those that are *natives of this country*, or *similar climates*, may in part be sown at that period, either in pots to be kept in a cold frame during winter, and turned out into the beds in spring, or sown in the open ground, for forming an early bloom in the following summer, to be succeeded by the part reserved for spring sowing, which is the period most usually devoted to that purpose. From the end of February to the beginning of May flower-seeds may be sown, whenever the weather is favourable, and the ground in a proper state for that purpose; reserving the more tender sorts till about the middle of April.

The depth of soil used as covering for the seeds should, in all cases, be apportioned to their size; for instance, Lupines, Sweet Peas, and similar large seeds, should be buried two or three inches under the surface; while Prince's Feather, Mimulus, Poppy, Tobacco, etc., of which the seeds are very small, should not be covered by more than a small layer of earth. It should further be kept in view, that seeds generally, and in particular those of a small size, vegetate more freely in a light than in a heavy and tenacious soil; therefore, in cases where the former does not naturally exist, cultivators will find their additional toil amply repaid by procuring and only using light soil for covering the flower-seeds.

The manner of sowing varies according to the taste of the operator: the practice formerly adopted, and still often followed by gardeners and others, is to form with the fingers, in the previously prepared ground, a circle from half a foot to three feet in diameter, and of the proper depth, in which the seeds are deposited, and the earth again returned; the whole being generally finished by clapping the surface gently with the back of a spade, or pressing the earth lightly with the foot, to assist in keeping out the drought; of course, the same practice of forming the reservoir for the seeds may be adopted whether the figure is intended to be a circle, a square, or any other form.

Some fanciful growers form the letters of their name, outlines of animals, etc., in their flower-beds, generally choosing for such purpose plants that possess a dwarf or compact habit of growth.

The young Annuals, as well as other plants, when coming above ground, are liable to be destroyed by slugs and various insects, as well as injured, particularly the less hardy sorts, by the night frosts; to prevent which, various methods are recommended and practised. In small gardens a very excellent plan is to sow the seeds in circles, not more than six inches in diameter, and inverting a flower-pot or tile; when the young plants appear above ground the covers must be gently raised on one side by means of a small wedge or stone, which should always be removed in the evening, the operator taking care to lift them to see that no enemies are enclosed. The covers answer the double purpose of protecting the young plants and of retaining the moisture about them until they acquire sufficient strength to resist all such injuries. Lime-water, applied at any time, proves destructive to slugs, but if sprinkled on the leaves during dry weather or hot sun it will injure them; therefore that expedient should only be resorted to in the evenings or during damp weather, when they have left their retreats. A sprinkling of quick-lime in the same manner is productive of the same effect, but always produces a disagreeable and unsightly appearance." (*For list, see Wrapper, p.* 2.)

WINTER MANAGEMENT OF HOT-HOUSE PLANTS.

BY A LONDON NURSERY PRACTITIONER.

All plants are naturally subject, in a certain extent, to the vicissitudes of winter, spring, and summer. It follows therefore that, in a state of cultivation, something analogous should be followed by the cultivator in imitation of those changes. To keep tropical plants at a high temperature during winter, when there is little sunshine, is to excite their growing principle at a period when they should rather be at rest; and where such a practice is followed, the plants become drawn up, weak and leafless, in consequence of the perpetual, or, we may say in this instance, unnatural, stimulus to excitement which the application of heat produces. It appears, from practice and observation, that the temperature of the plant stove should be kept as near as possible from 60 to 65 degrees during the dark days of winter, for all that is then required is to prevent the plants from being checked or chilled by cold during that season; so that, as spring naturally comes on, a further but gradual stimulus may be given them by additional heat, and more particularly during the day.

Water must not be entirely withheld, particularly from some species; but a much less quantity of it is necessary than when the plants are in a growing state, and able to decompose a greater portion of that element. Some species require none for several weeks together; and such may be ascertained by their habits of growth, and are of the herbaceous and bulbous sorts. As these naturally ripen their foliage in autumn (or at whatever other season), and appear to die down to the ground, they should be observed, and collected as near together as circumstances will admit, and a suspension of watering should then gradually take place, and be continued till they begin to show signs of vegetation in spring, when they should be again supplied as usual. Some species, which require very little water during winter, do not lose their leaves, nor die down to the surface of the pots; but it is only observation on the part of the cultivator that can direct him in these instances when to water, and when to withhold it. It is (as we have repeatedly observed) one of those cases in horticulture for which rules may be laid down, but not wholly without exceptions, and must entirely rest on the judgment of the cultivator. Steaming the stove during winter is a material feature in the best management of such plants, and should be scrupulously attended to, both to soften the atmosphere of the house, as well as to prevent the increase of insects, particularly the red spider, which is sure to make its unwelcome appearance in a high and dry atmosphere. The most eligible time for steaming the house is in the evening, when the flues are hottest, and it is performed by pouring water on them, which generates steam readily. In time of severe frost, this operation may be performed during the day, or dispensed with for a few days altogether. The quantity of water required to produce a sufficiency of steam depends on a variety of local circumstances, such as the size of the house, the way in which the water is put on the flues, etc.; but it may be safely asserted, that more than is necessary is often used when it is poured on them at random, or done in too hurried a manner. In steaming all sorts of hot-houses, as well as in their whole management, it can only be expected to be well done when the operator feels an interest or pleasure in doing it. A few minutes more spent in applying it regularly and leisurely over the whole surface of the flues will do more good than sluicing a hogshead of water over the house in a careless manner. During the winter months very little ventilation is required in these structures; for, unless the house be unusually well glazed, and in complete repair, a sufficiency of fresh air will find its way into it between the laps of the glass and other openings: indeed, greater care should be had to the exclusion of cold air during winter than to its admission. The plants are, for the most part (as observed above), in an inactive state, and therefore not in want of those gases which compose certain parts of atmospherical air, and which are found so necessary for them when in a growing state.

NOTES ON NEW AND SELECT PLANTS.

38. Pentas carnea, var. *rosea*. Nat. Ord. *Rubiaceæ*.—A superior variety of the much-esteemed *P. carnea*. The corymbs of flowers being of a more decided colour, lavender-pink; the growth is also much freer. This plant will be found to be a very beautiful ornament to our stoves, from its flowering freely and continuing in bloom for a length of time. (*Flor. des Serres*, 978.)

39. Lychnis grandiflora. Nat. Ord. *Caryophilleæ*. Syn. *L. coronata*.—A well-known old favourite of our gardens, first mentioned by the German traveller Kempfer, in his *Amœnitates Academicæ*, published in 1712; also a figure of it was given in the *Botanical Magazine* in 1793, under the name of *L. coronata*, a name given to it by Thunberg, but has not been generally adopted. It is a native of Japan, where it flowers in the months of May and June, but with us it blooms in the autumn. Its large flowers of a bright orange-red render it very attractive, and well deserving of the little attention it requires. (*Flor. des Serres*, 972.)

40. Aphelandra variegata. Nat. Ord. *Acanthaceæ*.—A very ornamental species, a native of Brazil, therefore requiring stove culture. The flowers are yellow, produced in a long, narrow, terminal spike, six to eight inches in length, the bracts of which are brilliant orange, contrasting finely with the large rich foliage. (*Flor. des Serres*, 981.)

41. Aphelandra Porteana. Nat. Ord. *Acanthaceæ*.—Another Brazilian introduction, discovered by M. Morel de St. Maudé, in the province of Bahia, in 1846. In habit and foliage it is somewhat similar to the last-named species. The leaves are blotched along the midrib with white. The terminal spike of flowers is shorter and thicker than the afore-mentioned, but the same in colour. The genus *Aphelandra* is exclusively American. The culture same as the preceding. (*Flor. des Serres*, 984.)

42. Lysimachia Leschenaultii. Nat. Ord. *Primulaceæ*.—First discovered by M. Leschenault, on the Neilgherreis, in Malabar. We do not know when this plant arrived in our gardens. A very abundant-flowering herbaceous plant, continuing long in bloom. The flowers are bright rosy pink, with small dark spots at the extremity of each petal; they are produced in short terminal spikes, towards the end of July. It is a decided acquisition to our borders, and we doubt not it will soon be as extensively cultivated as it deserves. (*Flor. des Serres*, 982.)

43. Viola capillaris. Nat. Ord. *Violaceæ*. Syn. *V. stipularis*.—This lovely little plant sprang up amongst the soil sent with some plants from Chili, and flourishes abundantly in the orangery at the

establishment of M. Van Houtte, at Ghent. The flowers are produced in great abundance, pale lilac-blue, with a light centre. It is of a compact branching habit, neat foliage, and attains the height of six to eight inches. The facility of its culture, together with the abundance and long succession of its flowers, which are produced in autumn, conduce to render it a valuable acquisition to the cool greenhouse. (*Flor. des Serres*, 983.)

44. Thyrsæcanthus barlerioides. Nat. Ord. *Acanthaceæ.*—A fine stove plant from Minas Geraes, in Brazil. The flowers are of a crimson-red, forming elongated thyrses; each flower is tubular, erect, *Justicia*-like, and about two inches long. The foliage is large, lanceolate. (*Flor. des Serres*, 986.)

45. Paphinia cristata. Nat. Ord. *Orchideæ.* Syn. *Maxillaria cristata.*—Mr. Purdie sent this curious and really beautiful Orchid from Trinidad, in the West Indies. It blossomed in August. The sepals and petals are alike in form, but the latter are rather smaller; the ground is white, variously blotched, striped and spotted with a rich mulberry-brown; the lip is very curious in shape, and is almost entirely of a deep chocolate-purple; the column is a greenish-yellow, with small blotches of chocolate near the base. The flowers measure four to five inches across the sepals. The leaves are lanceolate, four to six inches long. (*Bot. Mag.*, 4836.)

46. Brownea grandiceps. Nat. Ord. *Leguminosæ.*—There are seven or eight species in this genus of plants, which have been described. This species inhabits the mountain woods of Caraccas, Cumana, Cariepe, and La Victoria, and is named by the inhabitants "Rosa del Monte," or "Palo de Cruz." The flowers are not so brilliant in colour as in *B. coccinea*, but the heads are much larger, being about eight inches across, and the number of individual flowers in each are much increased. Dr. Lindley observed a very singular peculiarity in this shrub. "The brilliant head (of flowers) appeared on the side of the main stem, among the leaves, which at that time presented a singular phenomenon. Every evening they rose up and lifted themselves from the blossoms to expose them to the dew, so that each morning these beautiful objects were uncovered; but as the day advanced, the leaves gradually drooped, aad bent down over the flowers to guard them from the rays of the sun." In its native country it attains to a small tree, the branches of which are stout and pubescent. The flowers form a noble, pendent, globose head, somewhat of the appearance of a *Rhododendron;* each blossom is about an inch and a half across, rosy carmine, white stamens and yellow anthers. The leaves are about a foot in length. It is a noble species, and well worth cultivation in the conservatory. (*Bot. Mag.*, 4839.)

47. Abutilon insigne. Nat. Ord. *Malvaceæ.*—This handsome flowering species was noticed by us two or three years ago, when it first bloomed on the Continent; it has now, however, flowered in the collection at Kew Gardens. The ground of the flowers is white, but

it is almost entirely covered with the numerous rich carmine veins or the reticulation, on both sides of the petals, It blooms profusely, and at a time of the year when flowers in our conservatories are most welcome; it is in perfection in the months of January and February; it also has the advantage of blooming when the plants are not more than two feet high. We are indebted to Mr. Linden, of Brussels, for its introduction to Europe from New Granada. (*Bot. Mag.*, 4840.)

REVIEW.

THE CHINESE POTATO (*Dioscorea Batatas*) AND HOLCUS SACCHARATUS.

THIS is the title of a new pamphlet by Mr. John Henderson, formerly of the well-known firm in Pine Apple Place, London, intended to describe the nature of the plants whose names are given on the title-page. The interest which has been awakened in many circles, touching the *Dioscorea*, fully justifies the publication of a pamphlet descriptive of its nature and properties, whilst the importance that attaches to the *Holcus*, in the present deficiency of material for paper manufacture, makes it an admirable appendix to the main subject of the pamphlet. We congratulate Mr. Henderson upon the manner in which he has executed his task. His pamphlet is just such as a business man should send forth. There is no aim at fine writing—no attempt to make out a case; or, in plain terms, to throw dust in other people's eyes, and make them believe that there never were such plants on the face of the earth as those which he is now introducing to the notice of the public. He simply details facts, and upon those facts bases his conclusions, and those conclusions supported as they are by statistics will, we think, be gainsaid by few. In his preface Mr. Henderson states all this with a modesty that does him credit, and casts away from him all idea of exaggerating the qualities of the plants, truly observing that "such a course serves the cause neither of science nor of commerce. Whatever I may advance in favour of the *Dioscorea* or the *Holcus saccharatus* will be based upon facts, the results of the most careful experiments, conducted with the utmost skill and accuracy." Viewed in this light we do not hesitate to say that Mr. Henderson's pamphlet has a claim of no ordinary character upon all who are interested (and who is not?) in the progress of agriculture and agricultural science, and that none will be prepared to pronounce upon the merits of the *Dioscorea* and *Holcus* who have not first made themselves masters of the facts which Mr. Henderson's statements lay before them.

We have, in fact, here a complete detail of the experiments of Professor Descaisne, conducted in order to try the real merits of the *Dioscorea*, from which we learn that it is, in the Professor's opinion, superior in flavour to the potato, more productive, and can be kept longer. As regards the *Holcus*, we are astounded to find that, after the saccharine matter, which can be used for the production of either alcohol or cider, has been extracted, a large remuneration can be obtained for the fibre, which can be applied with success to paper manufacture. The results as given in the pamphlet are of a most wonderful character, and such as cannot fail to induce many to cultivate a plant which pays so well, and costs so little trouble.

We heartily thank Mr. Henderson for his pamphlet, and commend it without hesitation to the attention of all our readers, who should, we venture to add, peruse it before the season for turning its information to use has passed away.

SELECT AND NEW FLOWERS, CONTINUED.

WILLIAMS'S EVERGREEN CLIMBING ROSE.—A hardy *Ayrshire Rose* was impregnated with a Yellow Tea-scented China Rose, and this handsome hybrid was raised. It has the growth of the *Ayrshire*, and the beautifully formed buds of the Yellow China. The flowers are cream coloured, very fragrant.

RHODODENDRON CILIATUM.—We figured this charming Himalayan plant, one of Dr. Hooker's discoveries. It is now in beautiful bloom in a cool greenhouse, at Kew. The flowers are blush-white, with striking brown anthers, six or seven blossoms on each head. Each flower is about three inches across; very handsome.

HARDY CHRISTMAS ROSES IN BLOOM IN THE FLOWER-GARDEN AT KEW.—*Helleborus dumetorum.* Flowers about two inches across, of a pale yellow and green. *H. laxus*, an inch and a half across, deep green. *H. fœtidus*, an inch and a half across, purplish-blue. *H. purpurescens*, two inches across, a dull purple, having *white anthers*. *H. atrorubens*, two inches across, rich purple and *white* anthers; very pretty. *H. olympicus*, three inches across, blush and white, with green anthers; very pretty. *H. viridis*, two inches across, pale green. *H. rubescens*, two inches across, a free bloomer, purple-crimson, with *white* anthers. Flowers not quite so deep in colour as *atrorubens*. *H. niger*, three inches across, blush-white, tinged with green. They are very pretty winter and spring ornaments for the flower-border, particularly grown near the dwelling-house or frequented walk.

PRIMULA SINENSIS.—In the greenhouse is a pretty variety, having flowers *white* slightly tinged with *purple*.

INDIAN AZALEAS.—*Beauty of Europe*, pink striped with carmine, very distinct. *Vittata*, white striped with purple, like a carnation; very handsome. *Symmetry*, salmon-pink, spotted with crimson, *finest* formed flower; very handsome. *Louis Napoleon*, rich crimson-violet, double; fine. *Striata-formosissima*, *white* with pink flakes: fine form. *Admiration*, pure white with flakes of deep carmine; fine. *The Bride*, pure white, glossy, and of thick substance; handsome. *Criterion*, pretty pink edged with white, and sometimes striped with purple-crimson; good form. *Gem*, deep salmon colour; superb form and substance. *Robinsoni*, vermilion-scarlet, fine form, and thick substance.

MISCELLANEOUS.

Horticultural Society's Meeting, held at Regent Street, March 6th.—The attendance of visitors was more numerous than even the crowded one held in February, and the display of plants, fruits, and forced vegetables was both enormous and superb.

The *Chinese Primroses* were in profusion. Very fine specimens of the *Magnum Bonum* variety, the flowers of which are very large, a rich velvet-crimson with fringed margin, were conspicuous. The variety named *Bride*, a French-white colour, was very pretty. These formed a good contrast with the rosy red, white, and purple of others. The best collection was shown by Mr. Smith, of Little Blake Hall, Hampstead.

Cyclamens.—Messrs. Henderson, of Wellington Road, had a fine collection, viz., *Atkinsi*, *persicum*, *persicum alba*, *persicum rubrum*, *persicum carneum*, *persicum roseum*, *repandum*, *vernum*, and others. The varieties of *persicum* were very handsome.

Messrs. Henderson, of Pine Apple Place, sent a nice collection of *Acacias*; *diffusa*, *grandis*, *lineata*, *pulchella*, *longifolia*, *Drummondi*, were the best.

Mr. Veitch exhibited a beautiful bushy shrub of *Rhododendron jasminiflorum*, the Jasmine flowered. We figured this most charming species a short time back. The appearance of the plant is somewhat like *Escallonia macrantha*; it had sixteen terminal heads of its pure white, waxy-like flowers. Each head had about a dozen blossoms; tube three inches long, with the face end the size of a well-formed thick-petalled Jasmine flower. It is exceedingly neat and pretty, and ought to be in every greenhouse. *Thyrsacanthus rutilans*, the flowers are similar in form to the *Justicias*, borne in large clustered heads, of a scarlet-crimson colour. It ought to be grown in every stove, and would, by due attention, form one of the most ornamental climbers, either coiled round a wire trellis, pillar, or under a rafter. It is a profuse bloomer.

Amongst *Epacrises*, the *Hyacinthiflora* and *Hyacinthiflora candidissima* were most admired.

Cinerarias.—The best *blue* was *Lord Palmerston*; best light, *Queen of Beauties*, white, with dark disc. *Picturata*, pure white, and lavender disc; superb form. *Rosalind*, white tipped with purple, grey disc; fine form. *Prince Arthur*, fine scarlet-crimson; brilliant flower. *Styphelia tubiflora*, the flowers and plant are *Epacris*-like, white and carmine, an inch long, in spikes. It is apt to become naked; but Messrs. Lee's plant had been formed, by stopping, to a beautiful *bush*, and in profuse bloom; very pretty.

Orchids.—There were some very superb-blooming plants. *Dendrobium speciosum*, having about twenty large spikes of sulphur-white flowers. *Dendrobium nobile*, shown by Mr. Hammerton, was an extraordinary plant, far surpassing in size and beauty all others we have seen. *Phais grandiflorus*, by Mr. Forsyth, had fourteen spikes of its lovely flowers. Besides a number of others of less note.

There was a square cake of *compressed vegetables*, which weighed six pounds; the process of forming it thus has been conducted by the firm of Chollet and Co., of Paris, according to the detail of Masson's Patent. Carrots, leeks, onions, turnips, cabbages, potatoes, and other vegetables are first partially dried, then mixed and compressed into cakes. The *six pounds* cake, it was stated, would be sufficient to sauce a full dinner for 120 persons. A vast amount of it has recently been sent to the Crimea.

MANAGEMENT OF FUCHSIAS.—Last season I was much pleased with a superb collection of Fuchsias, which was exhibited at the Metropolitan Horticultural shows, grown most admirably, and the plants were in the *pyramidal style*, from four to six feet high, and broad in proportion, tapering upwards. The clever and generous cultivator of them has favoured *an amateur* with the following particulars of his mode of management. Plants, to bloom profusely at the *early part* of the summer in 1856, must be struck in the spring of the year 1855, and be duly potted and repotted, in order to have the plants as large as possible by the autumn. The leading (main) stem must be trained erect, and as it proceeds, it generally will push a sufficiency of *side shoots;* but if it fails in its progress, then stop the lead just above the vacancy, to cause the production of some. The side shoots are secured evenly outwards to form the branches, and to have those of about the same age, to extend nearly to the same length, they are tied to horizontal green-painted sticks. If any side shoot grows too vigorous, and robs its neighbours, the end is nipped off, and the branch tied in a downward direction, to check the extra vigour, and be loosened afterwards in due course. These plants are kept, trained, etc, in the airy part of a greenhouse during summer, and the last week in August they are placed out of doors in a sunny situation, to cause the shoots to become consolidated, and be *well hardened* before taken into winter quarters. During winter the plants are kept in a cool but dry greenhouse, and water is only supplied to have the soil barely moist during the winter rest. According to the period I want the plants to be in profuse bloom, so I start them into growth in spring. I allow the *new shoots* to push half an inch, and then turn the plant out of its pot, carefully take away a portion of the soil outside of the ball, and repot into large pots, from twelve to eighteen inches across the top. The compost is equal parts of good, fresh, turfy loam (six months old, as it is said) old, dry, rotten, hot-bed dung, and sandy peat, with bits of bone and charcoal, all well mixed, but not sifted. The new shoots are thinned, so as to leave a due portion for a profusion of flowers, as every shoot of a Fuchsia will bear blossoms, if rightly grown. For show in a greenhouse, all the blossoms are retained, and, literally, they almost smother the plant with flowers. When I want *large* blossoms rather than a profusion, for *exhibition* plants, I duly thin the flowers. Soft water, and once a week liquid manure, is liberally given during the growing period. I have a very free drainage in the pots. To promote the vigorous pushing and growth of the *new shoots*, I plunge the pots in a gentle hot-bed, in a double-roofed pit; it greatly benefits the growth. Less-sized specimens, of course, can be had the *first* season after cuttings are struck, but they do not bloom so fully till *late* in summer and autumn. The *early* spring and summer's bloom can only be had from plants raised and trained the previous year. Nothing can surpass in elegant and graceful beauty a properly trained *pyramidal*-shaped plant in profuse bloom. The branches do not require horizontal supports after the first season's formation.

THE SEA WEEDS OF AUSTRALIA.—I went to Rottnest Island, and spent six weeks exploring its reefs, and left them not half exhausted. Unfortunately the reefs are only accessible at new and full moon, and low water at this season is after sunset, so that I could only have hasty wadings in the evenings, often driven away by darkness. Nevertheless I greatly increased my number of species, and dried a large box of specimens. Since my return to the Sound, I took advantage of wet and stormy days (and a fit of the gout!) to examine all my West Australian *Algæ*, naming and describing the new species. The result is that I have collected 352 species (besides *Sargassa* and *Cystophoræ*, not examined), and mark 140 species as new. Among them are six new genera, all well characterised. There is no very wonderful structure among the novelties—no new genus of *net-work*. I did not myself find *Claudea*, but it was twice found in small quantity by Mr. George Clifton, while I was at Fremantle. He is a disciple of mine and an ardent collector, from whom I hope much in future. My *Martensia Brunonis*, which I sent you, I have since reduced to *M. elegans*, the African one. The whole number of net-work *Algæ* which I have found is nine, of which four are new species. Besides these I found a beautiful new *Kallymenia*, as big as two large cabbage-leaves, joined at the base, of a red-rose colour, and regularly pierced all over, like an *Agarum*, with round holes. I have only two perfect specimens, one of which is intended for you. Mr. Sanford gave me, from Champion Bay, a superb new *green-lace Alga* (*Struvea macrophylla*, MS.), sent by Mr. Drummond's daughter-in-law. I fear you do not remember the genus, which is described in Pl. Preiss., and of which you have the original species; but the new one has a stem supporting an oval crenated net-work, five inches long by three wide, resembling (it is bleached) an elegant structure of old point-lace—just what you might see on a Vandyke collar. I have only a single specimen. I am preparing a memoir of these *Algæ*, which I shall send home to be read at the Royal Irish Academy, and printed in their current proceedings, with a view to a larger and fuller memoir, with plates, in their Transactions, after my return home. The number of duplicates collected in West Australia is about 1600; not bad work either, considering I had no assistants, and frequently had to carry my day's collections five or six miles under an Australian sun.—*Dr. Harvey, in Hooker's Journal of Botany.*

MOUTHS OF PLANTS.—All manure must not only only be rendered liquid, but also be as thin as water, before it can be sucked up by the spongelets; and hence even the drainings of stables and dunghills, which are very rich in nourishment for plants, are too rich, that is, too thick to pass the small openings, till they are largely mixed with water, without which they will choke the crops instead of feeding them. When the leaves become yellow from this cause, they are usually said to be burnt by the heat of the manure. In the same way, the finest sort or the finest powdered lime, bones, or shells cannot, till dissolved in water, get through the spongelets into any plant. It is on this account that, in transplanting, the tips of the root-fibres are pressed and obstructed by the earth of their new situation, and are therefore unable to feed till they can place themselves in similar freedom in the earth as they *had* before transplanting. When they are bent or obstructed in this way, their growth is also prevented, and new fibres spring from other parts of the root, out of the materials which would otherwise have enlarged the old fibres. Plants thus acquire a greater number of mouths, the oftener they are transplanted, a circumstance usually acted on by nurserymen, who shift their young trees and other plants, for the purpose of multiplying their root-fibres, and consequently of strengthening the plants, by giving them a greater facility of feeding, from having more mouths to feed with. Every removal, however, must tend to obstruct or injure the root-tips, and of course check the growth, by preventing them from feeding. But by lifting plants with balls of earth, so as not to disturb the root-fibres, or by taking great care not to injure these, and at the same time spreading them carefully out by hand in their new situation, the plants are greatly benefited by it.

OBITUARY.—We regret to announce the death of M. C. J. B. DE MIRBEL, ex-Professor and Administrator of the Jardin des Plantes, at Paris, until 1850. He died at Champerret, near Neuilly, on the 13th of September last.

We regret also to announce the decease of Dr. G. W. BISSCHOFF, Professor of Botany, and Director of the Botanic Garden of the University of Heidelberg, who died on the 11th of September, 1854. He was born at Durkheim, in 1797.

BRIEF REMARKS, &c.

THE HELLEBORE AND CROCUS.—When we see the *Helleborus fœtidus* and the *H. niger* blowing at Christmas, the *H. hyemalis* in January, and the *H. viridis* as soon as ever it emerges out of the ground, we do not wonder, because they are kindred plants, which we expect should keep pace the one with the other. But other congenerous vegetables differ so widely in their time of flowering, that we cannot but admire. I shall only instance at present the *Crocus sativus*, the vernal and the autumnal crocus, which have such an affinity that the best botanists only make them varieties of the same genus, of which there is only one species, not being able to discover any difference in the corolla or in the internal structure. Yet the *vernal crocus* expands its flowers by the beginning of March at farthest, and often in very rigorous weather, and cannot be retarded but by some violence offered; while the *autumnal crocus* (the *Saffron*) defies the influence of the spring and summer, and will not blow till most plants begin to fade and run to seed. This circumstance is one of the wonders of the creation, little noticed, because a common occurrence; yet it ought not to be overlooked on account of its being familiar, since it would be as difficult to be explained as the most stupendous phenomena of nature.—*White's Natural History of Selborne.*

CAMELLIAS.—They flourish best when grown in good turfy loam that has been laid in a heap for a few months, and broken by the hand at the time of potting; add to it one-fourth of its quantity of old well-rotted cow-dung, with a sprinkling of bits of charcoal. Also have a liberal drainage of broken pot upon it, and a thin portion of moss to prevent the soil being washed among the drainage. Avoid giving too large a pot; but endeavour to encourage a numerous production of roots, which are the principal feeders to the plant, and in watering give alternately soft water and liquid manure,—an ounce of the best guano and a handful of soot to one gallon of soft water. With other due attention in allowing them abundance of air, except at the time of pushing the new shoots, when they must have extra warmth till the growth is completed; then give air freely to promote the formation of strong flower-buds. With this attention the plants will have a rich green fine foliage, and the flowers will be extra large and rich in colours.—*Miss Moore.*

CAUSE OF COLOURING IN PLANTS.—There is perhaps no subject of more interest than the cause of colouring in plants; it is one upon which till lately no very definite notions were possessed; but it has at length attracted the attention of the skilful vegetable chemists of Geneva, and the phenomena relating to it are daily becoming more and more intelligible. It appears that the opinion long since expressed by Lamarck, that when leaves and fruits acquire their autumnal colouring they are in a morbid condition, and that flowers are, from their birth, in a state analogous to that of leaves in decay, is very near the truth. Taking the green colour so prevalent, and so frequently exclusive in vegetation, as the fundamental colour of plants, it appears that deviations from it are chiefly caused by their chromule being combined with oxygen in different degrees. When leaves are green, they absorb oxygen at night, and part with it by day; but just before they change their colour, they cease to part with this gas, continuing, however, to absorb it at night. Hence it has been inferred by Mr. Macaire, that oxygenation takes place, which in the first instance discharges the blue and leaves the yellow, and next produces red; for in all cases red is preceded by yellow in leaves which change their hue. It is supposed that other colours may be caused by alkaline matter, or peculiar vegetable acids, being present, and that in what are called white flowers, the chromule is only in an imperfect condition; as apparent evidences of which, De Candolle points out, first, the analogy of the colour with that of blanched plants; second, the much greater proportion of white flowers in northern than in equatorial countries; and, thirdly, the well-known fact that many flowers which are at first white become coloured afterwards.

TO DESTROY INSECTS.—*Woodlice, Crickets, and Black Beetles.*—Take one pound of oatmeal and half a pound of coarse brown sugar; mix them, and add two ounces of pepper, ground fine. Lay it upon pieces of pot, where the insects frequent.

Slugs, etc.—Take cabbage-leaves and hold them before the fire till they are soft, then rub them with fresh butter or dripping, lay them in places infested with slugs, and when the leaves are infested with them, destroy them as you think well. Woodlice and earwigs are attracted by the same.

Black and Green Fly.—Take yellow clay, and work it in a tub of water till it becomes of the consistence of paint; put some of it in a pan, and dip the parts of the branches that are infested in it, and it will effectually destroy the insects for that season; or, make thin *sizing*, in which dip the shoots; this latter is excellent for rose trees when attacked.

The Scale on Pines has been destroyed by the same mixture.

Aphis lanigèra, or American Blight on Fruit-trees.—To every six gallons of the above clay and water add two pounds of cream of tartar, one pound of soft soap, and half a peck of lime; mix it, and in dry weather wash it over the infected trees, with a large brush, previous to the trees pushing in spring, then sprinkle them over with quick-lime.

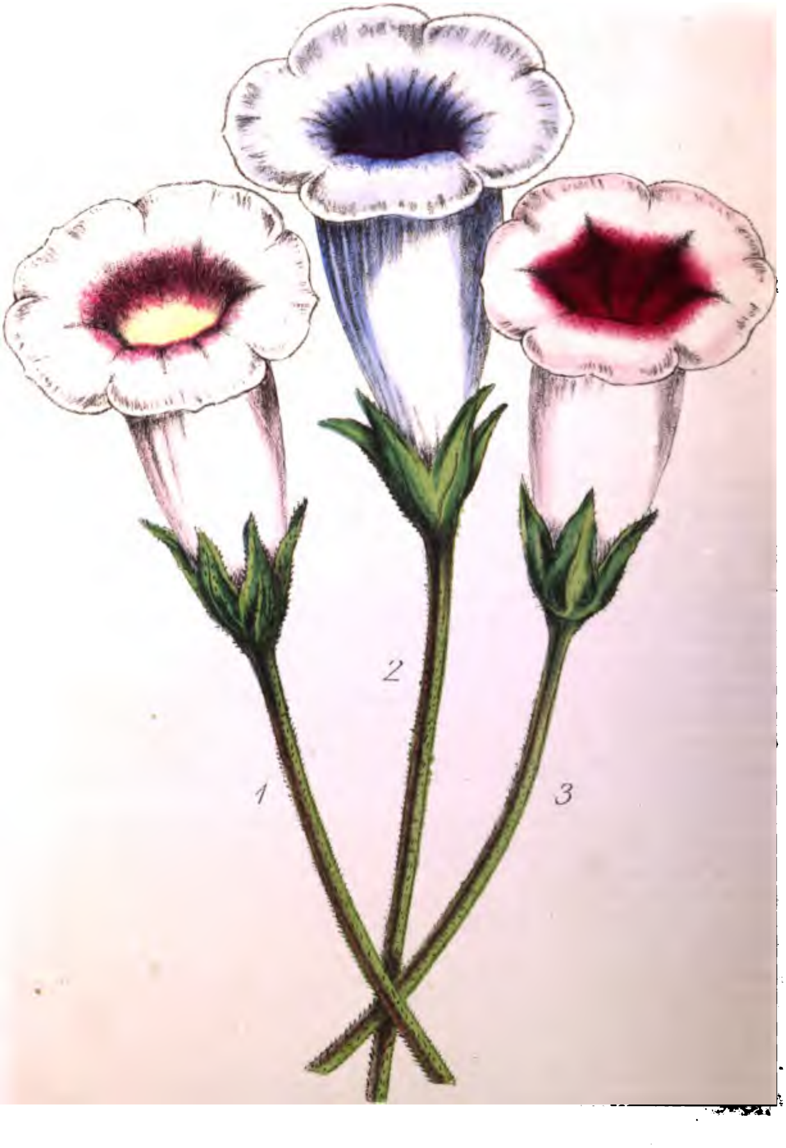
Flies and Wasps.—Pepper, sugar, and water will effectually destroy these insects.

FLORAL OPERATIONS FOR APRIL.

Flower Garden.—Let the previously prepared plan of beds and the present stock of plants be examined, in order to have a due supply, and lose not a day in beginning to provide for deficiencies. Have all your plants as bushy as possible; attend to stopping the leading shoots. Sow a succession of hardy and half-hardy annuals, and the last week of the month sow seeds of biennials, as *Hollyhocks*, *Sweet Williams*, *Scabious*, *Canterbury Bells*, etc., also seeds of perennials. *Auriculas* and *Polyanthuses*, shade, give plenty of air, and secure the stems; give manure-water every third watering. Pot off new-struck *Dahlias*, and *repot* those you intend to grow for exhibition, so as to have the plants strong and robust by turning-out time. Plant out roots of *Marvel of Peru*, *Carnations*, etc., pot off directly; shade for a day or two. *Pink* and *Pansy* beds must have the surface stirred, and an inch of fresh soil spread over. If *Tulips*, *Hyacinths*, *Ranunculus*, or *Anemones* be affected by frost, early in the morning sprinkle cold water over them. Let the covering be over the *Tulips*, but open at the side. A shower of rain every few days will be beneficial; if such occur roll up the covering. Secure all the flower-stems of *Tulips* or *Hyacinths*, so that the tall ones do not get broken by strong winds. Twist together two or three pieces of green worsted, and place a nice green stick at the end of the row; to one secure the worsted, then put it round the stalk of the first flower, and tie in a loop, carrying it on through the row, and secure the other end to the stick. The flower-stems are thus kept safe, at equal distances, and as they rise, draw up the sticks or worsted at each end in proportion through the season. Stir the surface of the bed, and protect from hailstorms. Bud *China* and *Tea Roses*, as soon as the bark will rise. If early Roses are attacked by insects, sprinkle with sulphur and tobacco-dust. *Pansies*, in pots, give manure-water twice a week; plant others in beds for late bloom. *Verbenas*, stop and train, and give manure-water twice a week; strike cuttings. Prick out *Annuals*, as *China Asters*, *Stocks*, etc., in a warm situation to strengthen prior to final planting for bloom. *Ranunculus*, let the soil be pressed firm about the neck of the plants; add an inch of fresh strong loam over the bed, and water freely between. *Tall Lobelias*, encourage by repotting, whether for beds or otherwise. *Wallflowers*, sow for next spring-blooming. Transplant runners of *Neapolitan Violets*, to be potted or planted on a bed afterwards for blooming. Cuttings of *China Roses* put out firm in a shady border will soon strike root. *Rose Stocks*, cut back to a bud or two all shoots not required for budding on. Layer *Rhododendrons*, *Acubus*, *Azaleas*. Graft *Thorns*, *Limes*, *Laburnums*, *Cytisus*, etc.

Greenhouse.—See that *Balsams*, *Salpiglossis*, *Globe Amaranthus*, *Brachycomas*, etc., are flourishing for summer ornament. *Tall Lobelias*, repot. Cuttings of the young wood of *Azaleas*, *Epacris*, *Heaths*, etc., which bloom during autumn or winter, will now strike freely. *Vases* and *Baskets* of plants now get ready. *Salvias*, strike cuttings for plants to bloom in autumn or winter. *Fuchsias*, train, give manure-water occasionally. *Camellias*, water freely whilst in bloom; if over, then repot into a size larger, put them in a gentle warmth, and promote a vigorous growth of new shoots, till the flower-buds just appear. *Orange* and *Lemons*, graft or inarch; place in a hot-bed frame of gentle heat. *Pelargoniums*, guard against green fly, or the flowers will soon be destroyed; fumigate two nights together, then syringe freely, using soft water; twice a week give manure-water. Plants to bloom in August and September, now stop the shoots; those now in bloom should be shaded during mid-day. *Lilium lancifolium*, and its varieties, encourage by repotting. *Chrysanthemums*, strike, pot, etc. *Oleanders*, encourage by a little extra heat.

Stove.—The winter-blooming plants cut down, and as soon as new shoots appear, repot. *Achimenes*, repot; also *Cockscombs*, etc. *Baskets* of drooping plants occasionally dip in water. *Gloxinias* and *Gesnerias*, repot, and syringe the foliage over and under twice a day. *Ixoras*, etc., for exhibitions, supply liberally with manure-water. Cuttings of young wood strike freely now. *Gardenias*, duly attend to have a succession in bloom, keeping some in frame, and remove here.



HYBRID GLOXINIAS.

The Floricultural Cabinet.

MAY, 1855.

ILLUSTRATIONS.

GLOXINIAS.

A **celebrated** French author on gardening, **Charles Louis L'Heritier**, conferred the *generic* title *Gloxinia*, to commemorate B. P. **Gloxin**, of Colmar, a noted German botanist. The species which first bore the name was *G. maculata*, having been discovered in South America, and introduced into England in 1739. It is therefore almost one of the oldest of our *hothouse* plants, for but a few years prior to its introduction the first glass plant-house in England was constructed. It is, too, one of the handsomest blooming hothouse plants we possess even at the present day, when properly treated. Its native situation, in South America, is on the margin of *dense woods*, where the surface soil is a *light leafy mould;* and it is worth a remark here, that all the species subsequently discovered in South America and introduced into England were found growing in similar leaf-mould and situation.

The next species introduced was *G. speciosa*, in 1815, being seventy-six years after the introduction of *G. maculata; G. caulescens*, in 1820; *G. hirsuta*, in 1824; and subsequently, *G. digitaliflora*, *G. tubiflora*, *G. discolor*, and *G. picta*, as well as some others more recently. The accession of so many diversified and handsome species soon presented scope for the attempt to raise *hybrids*, and the result has been especially successful, in the production of many highly beautiful, and very distinct both in form and colours. In 1845, the most singular and distinct was raised from seed saved the year previous, by Mr. **John Fyfe**, gardener, at Rothesay, Buteshire, in Scotland. It is supposed the seed was obtained from *G. maxima*, but what its blossoms had been impregnated by, it appears, is not known. The form of the flower and its *erect position* very much resemble the lovely blue *Spring-gentian*. It bloomed first in 1845, and attracted universal attention and admiration at the principal exhibitions throughout the country, differing so widely from every other *Gloxinia* then existing, and the flowers being so strikingly beautiful.

Since the *G. Fyfiana* was raised, much attention has been paid by nurserymen and others, both in our own country and on the Continent, to produce improved varieties of the general class of Gloxinias, and the result has been crowned with great success; we now have upwards of sixty kinds, very distinct and beautiful. Four years ago Mr. Haage, jun., nurseryman, of Erfurt, succeeded in obtaining a number of very handsome hybrids from the impregnation of *G. Fyfiana*, giving us a most valuable acquisition to the *erect-flowering section*. The three we figure in our present plate are selected from the collection. They are real gems, grow freely and bloom profusely, and they, as well as the seven others, merit a place in every stove, warm greenhouse, or pit frame. They bloom well in a dwelling-room window, and have an interesting appearance.

Plants may be obtained, at a very reasonable price, of the principal nurserymen.

BRUGMANSIA ARBOREA.

BY MR. W. S. PRESTOE, ROYAL GARDENS, KEW.

This beautiful flowering greenhouse plant, though rather a robust grower, nevertheless can be brought to perfection with a little trouble, either for decorating the greenhouse or planting out in the flower borders, or *large* beds, in the summer season.

To proceed therefore with the process of its culture, I must commence with striking young plants; in doing this, there are several methods, viz., by cutting pieces off the roots, about two or three inches long; by cuttings made from the *young wood* when about three inches long; or by suckers, also by *eyes*, which is the best, and which I recommend to be adopted. Eyes should be cut from wood *one year old* and well ripened, about the beginning of February, leaving one inch of wood *above*, and one *below* the eye. They must be placed in pots of three inches across, singly. The soil used must consist of equal parts leaf-mould and loam, with a sprinkling of sand. They should then be watered and plunged into a gentle bottom heat, and there remain till they have grown about three inches (during which they must be carefully attended to with water), when they must be repotted into five-inch pots, into soil of two parts loam and one part rotten dung; the best is the remains of an old mushroom bed (every particle of which ought to be saved, as it is very useful for various *fast-growing* plants), to which should be added one gallon of charcoal, broken to about the size of common nuts, to each bushel of soil, with a good sprinkling of river or road sand; care must be taken, too, to have a good drainage. After this they must be taken back, and be plunged again for a few days to get established, after which they should stand upon the surface of the plunging materials, or be removed to the shelf of a warm house, and afterward, as they require it, they must be repotted, using the same kind of compost as before. They should not have too large shifts at a time, say from five to seven or nine inch pots, which will be quite large enough. Great care must be taken that they do not lack a supply of water; they should also be supplied with weak liquid manure twice a week. If they suffer for want of water they will lose their leaves. They should also be syringed over and *under* the leaves *every day* with clear water, or that dreadful pest the *red spider* will certainly attack them. When the plants have attained the height of eighteen inches, the tops should be stopped, this will cause them to throw out side shoots, which will soon commence flowering; they should then be removed to the greenhouse or sitting-room. When they have ceased flowering they must be allowed to go to rest, by gradually withholding water from them, and placing them in a cool and dry part of the greenhouse. In February they should be brought forward and shaken out of the soil, and the roots be pruned in; also cut down the head, so as to leave only five buds of the main stem, binding a piece of matting between the two uppermost buds, this will cause them to break close back. They must afterwards be treated as previously described for young plants. I have seen plants not more than three feet six inches high having twenty-six full expanded flowers at a time, with a number of buds besides.

If any plants be required for planting out into the borders, they must be those which are one year old. They will only require to be started into growth in *the greenhouse*, and be planted out in May, into a soil prepared for them by adding plenty of manure; there they will bloom freely at the closing period of summer, and be highly ornamental. If required again, the plants can be taken up and stowed away anywhere protected from frost.

SHOWING THE FORM OF FLOWER BEDS, AND THE EFFECT OF BOX, OR OTHER EDGINGS, IN FLOWER GARDENS.

BY A GARDEN ARCHITECT.

To those who intend laying out plots of ground as flower gardens in the old Dutch or Italian style, with box or other edgings,—a style of gardening I should be glad to see more prevalent, especially where the limits are confined, from the simple fact that regular forms are always pleasing, and as many *beautiful designs* for such gardens have appeared in the CABINET from time to time,—perhaps the following method of showing the effect of such a garden may not prove uninteresting.

Having fixed on a design, the ground is dug, made smooth and level; the figures are traced thereon in the usual way with exactness. Instead of pegs, I take a barrowful or two of light-coloured sand, which is strewed on the traced lines about an inch in thickness, in a neat and compact manner; this in a few minutes becomes white and dry. The effect is really very pleasing. You have as it were a garden with edgings of sand, which, contrasted with the dark soil, looks as handsome as box itself. By this method the unsightliness of a multitude of pegs is avoided, which to most minds, especially when the figures are complicated, appears intricate and perplexing, to say nothing of the difference in the labour. The effect of a large garden may be shown in a beautiful manner by the above method in a very short time. Another material advantage is its permanency; during the absence of the proprietor, or from any other cause, it will remain in the same state for a long time.

I am aware that some persons may smile at the simplicity of the above remarks; but I am confident that on trial they will be duly appreciated, and as the season for performing such operations has now arrived, I trust they will be the more acceptable.

REMARKS ON PASSIFLORAS.

BY MR. JOHN SHEPHERD, GARDENER AT WYNFORD HALL.

P. RACEMOSA.—This fine species thrives well when potted in a mixture of *loam and peat*, with a free drainage, and placed in the orchidea stove, where it obtains plenty of heat and moisture. If cuttings be made of the firmest of the *previous season's wood*, in May, then planted in pots well drained with potsherds and filled up with sand, and afterwards placed in a temperature of from 70 to 80 degrees Fahrenheit, drying them occasionally, to prevent their damping off, but little difficulty will be found in striking them. These will make fine plants by autumn.

The greater part of this genus require the heat of the stove; the *P. quadrangularis*, in particular, seldom does well except it be grown in the corner or side of a bark bed. Either, therefore, make a square partition with bricks or boards, one foot wide and two feet deep, or make a box for the purpose, and plunge it one side of the tan pit. Leave in this box or division several holes round the sides, for the egress of the roots; fill the box with good *rich loam*, and put in the plant. Every autumn, shorten the stems of the plant in a similar manner to cutting a vine; that is, if the young shoots are found weak, shorten them to two or three eyes of the old wood, and the stronger ones proportionally. In February, just before the plant begins to grow again, raise it, if convenient, out of the box, trim its roots, and, after having put in a supply of new soil, replace it. If not convenient to raise it, take out so much of the old soil as can be got round the sides of the box, reduce the ball one-third, and add a fresh supply of loam. Abundance of water is also requisite during the flowering season, or the fruit will set very shy, even with impregnation. Fruit is produced from the end of June till Christmas. This fine species, with *P. edulis*, *alata*, *ligularis*, *incarnata*, *maliformis*, and *lancifolia*, are grown for their fruit in America, where they are known by the name of Granadillas, because the fruit bears a resemblance to the Granada, or Pomegranate.

Passifloras are sometimes rather shy at setting their fruit; this may be remedied by impregnating with the pollen of other species, in preference to their own pollen.

P. alata will grow under the floor of a hothouse, and in other situations where most of the stove species will *not* live; only it is necessary to keep the roots quite moist.

P. racemosa will bear fruit, if impregnated with the pollen of *alata*, or other species, but shows no disposition to do so when confined to its own stamens.

P. Decaisneana.—I obtained a plant of this most splendid species last spring, grew it in a large pot in a *warm greenhouse*, and trained round a pillar; it bloomed most admirably. I potted it in equal parts of good loam, peat, and old well-dried cow-dung, with free drainage.

All the stove species require cutting in more or less every autumn.

MESEMBRYANTHEMUMS HIGHLY ORNAMENTAL FOR THE FLOWER GARDEN IN SUMMER.

BY LOUISA MACE, AN AMATEUR FLORICULTURIST.

THE profusion of blossoms which this extensive family of plants produce, and the neatness of their growth, ought to render them greater favourites than they seem to be at present, especially as summer ornaments to our flower gardens. I am of opinion that they are much hardier than is generally supposed; and although from their succulent nature it is evident they will not stand frost, yet they may with success be planted out in the open air much sooner than they usually are. Mesembryanthemums that are intended for planting out in the flower garden should be repotted in March, in soil composed of fresh loam and peat in equal quantities, with a sufficient portion of sand to prevent it from becoming coagulated. When they are potted, the soil should not be pressed very tight, and sufficient space should be left for half an inch of fine gravel to be placed on the top (from which all the sand has been thoroughly washed), this will keep the surface of the soil from becoming hard, and also keep it moist; for although these plants are impatient of wet, yet nothing is more detrimental to their vigorous growth than drought. After they are potted they should be placed in a frame, and kept close and moderately warm till they have taken fresh root, when they should be gradually hardened, that they may be ready to turn out not later than the end of April. In placing them in the open air, it is not essential that they be turned out of their pots; but if they are, the balls should by no means be broken. Always have them where they can have full sun. After they are turned out, they ought to have a slight framework or hoops placed over them, in order that they may be carefully protected from cold winds and heavy rain for a short time, especially at night. Thus treated they will amply repay the trouble that has been taken with them, by producing a constant succession of their splendid blossoms till the frosts in autumn stop vegetation, especially so if grown upon a rockwork, whether a small-sized one formed for the purpose, or upon one of a large scale, where is a general collection of other plants.

RAISING SEEDLING STOVE FERNS.

BY A PRACTITIONER.

The following is a successful method of raising Stove Ferns from seed:—

Fill any convenient-sized pot with sandy peat earth, and on the top allow a few pieces to rise above the rest. When this is done, merely shake the seeds on the top and sides of these pieces. It will be readily understood that the minuteness of the seeds requires this precaution, for by sowing them in a pot on a level surface the whole of the seed would be subjected to the same kind of treatment, which might happen to be either too wet or too dry; indeed, it is not impossible, even with the greatest care, that both may occasionally happen, The soil in which the seed is sown ought to be scalded with boiling water, in order to kill any seeds of the common hardy kinds that may accidentally have found their way into the soil, such as *Aspidium Filix-mas*, and some others, which, even with this precaution, will not unfrequently intrude themselves.

They seldom succeed so well as in a close frame in a cool part of the stove, where evaporation can be most effectually prevented; but when pushed, they will by no means endure to be continually kept close under bell-glasses. Water must never be applied to the surface of the pots; but by keeping the pots in feeders which contain a little water, they will generally keep themselves sufficiently moist.

THE LOVE OF FLOWERS.

BY A COUNTRY CLERGYMAN.

The love of flowers is a delightful, a natural, and a rational inclination of a refined mind. Flowers are among the most beautiful objects in nature; their delicacy, their forms, and their colours attract the most incurious eye; and their fragrance is gratifying to one of the most acute of our senses. Whether produced by the lofty tree, the humble shrub, or the lowly herb—whether found on the mountain, in the valley, in the lake which lies, or the stream which wanders through the vale, they are equally admired and admirable.

The most untutored, even the infant mind, is delighted not only with the view but with the possession of flowers. They are the emblems of purity and innocence, and being the chief and most conspicuous ornament of the vegetable creation, they are borrowed to decorate the habits and the habitations of man; they add a charm to the barren wilderness, and are hailed with pleasing emotions by the weary traveller in the most lonely desert.

Ever since gardens were attached to the dwellings of men flowers no doubt had an early introduction. When fruits and sanitary herbs were admitted for the supply of his board, and trees for shade and shelter, flowering plants were added to adorn his home and delight his eye.

That some species of flowers, from the splendour of their blossoms, the sweetness of their scent, and the ease with which they could be transported from place to place, became in course of time more regarded than others, is a fact about which there can be no doubt. This is evident from looking at the inmates of our flower gardens at the present day. A majority of these are bulbs and tubers, viz., anemones, ranunculuses, tulips, hyacinths, narcissus, etc., all of which have received the particular care and regard of all lovers of flowers. The facility with which these different plants can be cultivated, the great beauty and amplitude of their flowers, and, what is still more attractive, the readiness with which their colours respectively become interblended among themselves, enhance their value and extend their cultivation.

So interesting was the mutability of form and colour to which these bed flowers were subject, that new varieties were extravagantly prized, and so highly esteemed, that single roots were often (as now) sold for considerable sums of money. The demand for these new varieties was so general and incessant throughout Europe, that commercial cultivators sprang up in many places, particularly in Italy and Holland, so that floriculture became a distinct branch of gardening, and the business of a florist a distinct and profitable branch of trade.

The treatment of these tribes of plants also became a distinct section of the flower-gardener's duty. Rules were laid down not only for the management of the plants, but also for judging of the specific merits of the flowers. A sort of standard was arbitrarily fixed among practical florists and amateurs, by which all varieties were to be judged; this consisted of certains forms, positions, and colours, and particularly in the combinations or dispositions of the colours. The natural form, however elegant, or the variegation of the tints, however vivid and striking, are not to be judged by their own intrinsic excellence, but by the amateur standard previously fixed; and to which if the new flower does not make a near approach, it is at once declared naught and worthless!

This refinement in flower-craft never disturbs the general lover of flowers. He has his beds of tulips, of hyacinths, of ranunculeses, etc., and from every individual contained in his collection he derives unalloyed pleasure. He is not tortured by that precise fastidiousness of propension (for taste it cannot be called) which will make him turn away disgusted from a beautiful tulip merely because it is somewhat a foul bizarre, or an imperfect byblomen. Whether a hyacinth be single or double, whether with a plain or a coloured eye, if it be a well-grown stately flower it meets his approbation. Nor is his regard confined to the narrow limits of the arch-florist; he bestows attention on every bud that blows, whether the early gems of spring, the ample blossoms of summer, or the parting glories of autumn.

This general love of flowers is a source of unceasing pleasure to the possessor. In all his walks, whether in the garden or in the fields, in the highly cultivated pasture, or on the open common, he meets something to admire and arrest attention. His flower garden is a receptacle for everything that is gay or sweet; he collects not only the ephemeral favourites of the professional florist, but also the more lasting ornaments of the grove and shrubbery.

Unluckily for the exclusive notions of the thorough-bred florists many of their exquisites are monstrous, and as far removed from the simple elegance of nature as art and a vitiated fancy can make them. At the same time we willingly admit that a super-refined taste in flowers is a professional qualification, and to the amateur an accomplishment, which to both may be productive of personal satisfaction and happiness, which is so far good; and if at the same time it can be turned to account as a source of profit to the first and of fame to the second, it is at least a commendable study and a laudable pursuit.

But it is frequently observed of this flower fancy that there is danger of its running into extremes. Some societies have erred in this way, by carrying the pursuit of *floral varieties* to too great a length. Such exertions do nothing for science. The botanist abhors and disclaims it; the cultivator of the permanent beauties among shrubs and trees scouts the idea of giving preference to objects of so fleeting a character as what are at present called florists' flowers, more especially if it operate so as to cause a neglect of less perishable plants. It is a diversion of the public mind from things which have long been and will long continue to be the glory of our gardens, to trifles of so fugitive a description that they are but rarely seen thrice in the same place, their value and novelty diminishing or rather vanishing together in a very few months.

The old-established stage, bed, and border flowers are not alluded to in this charge—they, it is likely, will always keep their ground in public estimation; but new tribes have been lately brought into notice, which are of a much more ephemeral character, and from the great sensation evinced in behalf of those transitory beauties, there is fear lest the legitimate love of flowers diverge into that fatuity of mind called *florimania*.

That our tastes and peculiar fancies are not always regulated by sound judgment and prudence needs no proof. "*De gustibus non est disputandum*" is an old saying, but there is reason in all things. The leaders of fine taste in the floricultural world should endeavour to direct the public feeling to things truly valuable, and inculcate pure unsophisticated notions respecting the forms and tints of flowers, which may be appreciable by every one. At present the distinctions between first, second, and third rate Tulips, etc., are really so imperceptible to common eyes that much of the pleasure of looking at fine flowers is nullified for want of a little knowledge, which appears to be impounded in the heads of a few professional men. This information the public have a right to expect from floricultural societies, especially those which have periodical publications attached to them. These societies include some talented men, who, while they are engaged in promoting the culture and fostering the natural taste for flowers, should at the same time fix on those things for exhibition and prizes as will be henceforth real and lasting ornaments to our gardens.

No one can object to such associations. Floriculture, as already observed, is one of the most rational and pleasing amusements; it tends to refine and humanize the rude or ruffled mind; and those who take the lead in upholding it should aim at keeping it within reasonable bounds. The old stage, bed, and border flowers will never be abandoned; but all these, beautiful and sweet as they are, cannot be compared with the Fuchsias for elegance; the Azaleas and Kalmias for delicacy; or with the Rhododendrons, Magnolias, and Camellias for substantial and lasting grandeur. And yet, with regret be it stated, that there are perhaps thousands of these fine shrubs sold for a mere trifle, or annually committed to the flames in our nurseries, while the versatile Calceolaria and Mimulus, the lovely but puny Heartsease, and the coarse though gaudy Dahlia engross the attention and command the purses of every one who wishes to shine as a fashionable florist.

PRACTICAL NOTES ON THE MANAGEMENT OF GREENHOUSE PLANTS.

BY AN EXTENSIVE PRACTITIONER IN A NOBLEMAN'S GARDEN, NEAR NEWCASTLE-UNDER-LYNE.

GREENHOUSE plants should never be supplied with much water in wet or frosty weather, and none unless the soil in the pots becomes dry. This rule must be particularly attended to, from the beginning of November till the end of February.

In March, the plants may be occasionally syringed overhead to clean and refresh the leaves, but always select fine days for the purpose; and let this, as well as the general waterings, be done in the morning, from the middle of September to the beginning of May, and at all other times in the evenings.

As the season advances, and the weather becomes milder, increase the quantity of air, until, by the middle of May, a large portion of air may be left on all night, except in case of severe frost. And this rule of admitting air must be attended to throughout the winter at every convenient opportunity; but always make a practice of shutting up early in the afternoon.

Always keep the plants clean, and perfectly free from dead leaves and weeds; this must be particularly attended to in the winter season.

About the beginning of March repot all the plants that require it, and top-dress the remainder with good fresh soil. Some free-growing kinds may require potting two or three times in the course of the summer, but the last potting should never be later than the middle of September.

As greenhouse plants differ materially from each other in habits, so also the soil suitable for them must vary in proportion. For a general idea on the subject, the following, with some few exceptions, will probably be found pretty near the mark.

All plants whose branches are fragile, and roots of a fine thready fibrous texture, with general habits like *Erica*, as *Diosma*, *Andersonia*, *Epacris*, etc., will require the same soil (peat earth), and very similar treatment to Cape Heaths.

Those whose wood and general habits partially differ, and whose roots are of a stronger texture, as *Acacia*, *Ardisia*, *Stenocarpus*, etc., will require a portion of sandy loam,—in many cases about equal parts; and where the habits, etc. differ materially from the heath, only a small portion of peat earth will be required, and the compost may be made a little rich by the addition of well rotted-dung.

Almost all Cape and other bulbs, as *Sparaxis*, etc., thrive best in a mixture of light rich sandy loam, leaf-mould, and a little peat. Shrubby and herbaceous plants, with luxuriant roots and branches, as *Myrtus*, etc., require rich loam, lightened with leaf-mould. Plants with powerful roots and but slender heads, as *Veronica*, *Senecio*, etc., require a light sandy soil, mixed with a small portion of leaf-mould and very rotten dung.

Never pot the plants in a soil too wet; it is better to keep the soil rather dry than otherwise. Nor ever sift the soil, but chop and break it as fine as possible, because sifting deprives it of the fibrous particles, amongst which the roots grow very rapidly. Always in potting give a good drainage with broken potsherds.

In the beginning of June the plants may be removed to their summer station, out of doors. Always place them in an aspect screened from the effects of the mid-day sun, but yet where they will be able to receive the sun morning and evening; whilst in this situation they must be supplied with water as often as they require it.

In the beginning of September again examine them throughout, and pot all that require it, and top-dress the remainder; by no means let this be done later than the middle of September, or the plants will not have time to recover before winter.

Not later than the first week in October, prepare to remove them back into the greenhouse. Clean and properly tie them up, previous to setting them on the stage.

After they are removed again to the house, give them abundance of air, day and night, and continue gradually to decrease it as the weather becomes colder.

Propagation.—The propagation of greenhouse plants must be performed at different times of the year, according to the nature and habits of the plants, and the state of growth in which the cuttings will strike with the greatest freedom.

Some grow the best when the wood is quite young and tender, as *Fuchsia*, *Andersonia*, *Adenandra*, etc.; others when it begins to assume a brownish colour, called half ripened, as *Heliotropium*, *Goodenia*, *Pimelea*, etc.; and others when it has become quite hard and ripe, as *Araucaria*, *Aulax*, *Melaleuca*, etc. But as a general rule, half-ripened cuttings will do the best. Some plants, however, will not grow from cuttings of the stem at all; these are propagated by cutting off large pieces of the roots, planting them in pots of soil, and plunging them in a little bottom heat, as some species of *Acacia*, etc.

All hard-wooded plants make roots best in clear sand, but soft-wooded kinds should be planted in a mixture of loam; therefore, after well draining the pots or pans intended to receive the cuttings, fill them, according to the nature of the plants to be propagated. On no account plant soft-wooded and hard-wooded cuttings in the same pot.

Some sorts will not grow readily without a little bottom heat. Plunge the pots in a cucumber frame, or pit of any kind, where they will receive the benefit of warmth.

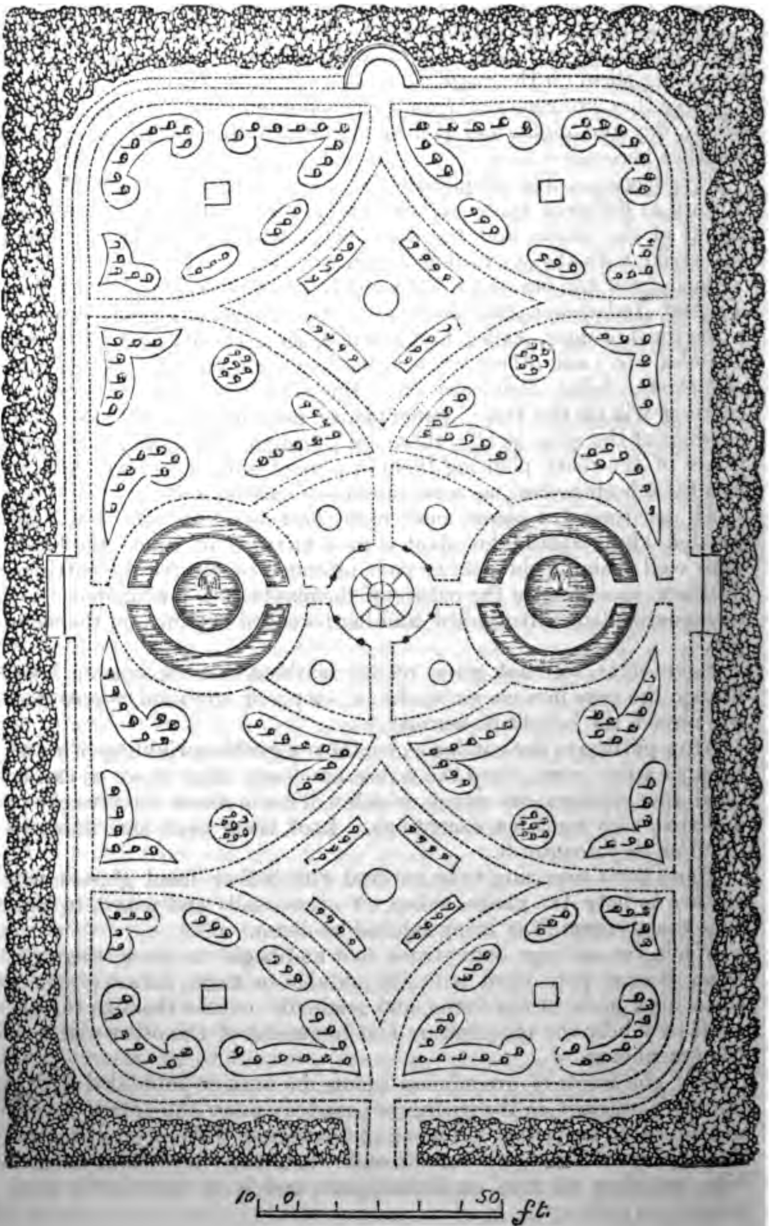
After putting in the cuttings, give them a gentle sprinkling of water through a fine rose; keep the frame as closely shut down as can be until the cuttings are struck, which will be in about three weeks or a month, with some few exceptions. Look them over, and water as often as they require it.

Those sorts requiring to be covered with bell or hand glasses will require to have the glasses taken off occasionally and wiped, to prevent the cuttings from being injured by damp.

When the cuttings have struck root and begin to grow, then pot them in small pots filled with soil suitable to their nature; replace them for a while in the frame, and gradually expose them to the air, until they bear the temperature and treatment of the other plants in the greenhouse.

Sow the seeds of greenhouse plants in pans or pots filled with a light soil, as early in the spring as possible; place the pots in a very gentle heat, keep the soil damp by covering with moss, and occasionally sprinkling with water; and when they are about an inch high, pot them off into small-sized pots, and treat them in the same manner as cuttings.

DESIGN FOR A FLOWER GARDEN, BY T. RUTGER, ESQ.



The circular structure in the centre of the design in the previous page is intended to be open all round—the roof being supported by a pillar in the centre, and by eight pillars around the circumference; round the central pillar is placed a seat. The pillars around the circumference should be adapted for climbing roses, or other creepers. The two basins with fountains are each surrounded with aquariums, intended for the growth of water plants, such as the white and yellow Water Lilies, etc., or they may be substituted by semicircular beds, as taste may suggest. The small open circles and squares intimate the sites for statuary, vases or urns; if desired, handsome shrubs might occupy their places. There is an alcove at the end, and a seat on each side, in the shrubbery, placed adjacent to the fountains. Those who might object to the expense of an ornamental iron structure in the centre of the garden, might substitute one of a rustic character, roofed with thatch, the whole covered with creepers.

REMARKS ON APHIDES (GREEN FLY, ETC.)

BY A PRACTICAL GARDENER IN SUSSEX.

Of the many insects found in gardens, the *Aphides*, from their numbers, and from the great variety of plants on which they live, are perhaps the greatest enemy of the gardener, though no one is more easily extirpated, provided timely and proper measures be taken to kill or banish them. They are as troublesome in stoves, greenhouses, and forcing-houses as in the open air; in the former, they fix themselves on vines, peach and nectarine trees, on strawberry plants that are forced, and almost all other plants taken in to be forwarded, whether for the flowers or fruit. In the open air, they destroy or very much tarnish our finest rose trees; they attack peach, nectarine, plum, and cherry trees on walls, and, if suffered to remain unmolested, will destroy the trees entirely. When this happens, it is usually attributed to *blight*, the common name for all defects of fruit trees, whatever may be the cause, whether from neglect, mismanagement, mildew, or insects.

The *Aphides* are produced by what some naturalists called *animalcular* generation; that is, as they explain it, not only is a mother-insect impregnated by the male, but all her progeny also for nine or ten generations: hence their astonishing fecundity and increase in a very short space of time. In the autumn they are oviparous, laying their eggs in patches firmly glued together round the bases of buds, or in any hollow of the bark. In this state they appear to be indestructible by frost, because, as soon as the warmth of spring commences, they come forth in myriads, leaving their little glutinous cases behind. In the summer they are viviparous, and then the parturient females may be seen in the act of bringing forth their young in rapid succession; so that if only a single female be seen on the point of a shoot, she is soon surrounded by a numerous family.

That the *Aphides* are easily killed by fumigation of tobacco-smoke is well known to every gardener; or the trees sprinkled with snuff or tobacco-water from time to time will keep them off. But the grand object of the gardener ought to be the prevention of the attack; and this can only be done by applying a wash in the autumn, to prevent the mother-insects from choosing the plants so washed as a place for nidification, for if this could be accomplished, there would be no early appearance of the young broods in spring. Soap-suds, tobacco-water, and *size* (such as is used by bookbinders), etc., boiled together for a few minutes, and when in a milk-warm state syringed over and under the foliage or rose buds, before the flowers expand, will destroy the *Aphides*. It coats over and smothers them, but does not injure the plant in the least. A day or two after the plant may be sprinkled over with pure water, to wash off the mixture. If the ground under the trees be now and then dusted with soot, which is always offensive to insects seeking the sweets of either foliage, flowers, or fruit, it is essentially useful.

Such nauseous applications can only be used before the flowers appear, as the scent would certainly be deteriorated by any portion of these ingredients remaining upon them; with fruit trees, too, fumigation may be employed to within a fortnight or three weeks before the fruit is ripe, as the taint of this on the trees is much sooner dispersed. Cherries on walls are often sadly disfigured by the *Aphides*; their excrement, called *honey-dew*, falls on the fruit, and, being of a clammy consistence, every particle of dust sticks to the smooth skin of the fruit, rendering them unfit for the use of the table, unless they be thoroughly washed in water. Such trees should be well fumigated as soon as the fruit are as large as marrow peas; the trees may be syringed over and under with the above mixture.

There are many different species of *Aphides*, and of different colours, which, it would appear, is owing to the quality of their food. On the Rose and many other plants they are green—hence the common name of *green fly*; on the Elder and common garden Bean they are black; on some Geraniums they are red; and on Crack-willow they are grey, and of a very large size, which is a very distinct species. A mealy sort attacks cabbages and turnips in dry summers, and the common green species sometimes fall on the common field-pea in such numbers as positively to destroy completely the crop, leaving the surface of the ground white with their sloughs, and where there are also myriads of the little two and seven-spotted lady-birds devouring the *Aphides* which remain on the ground after the podless straw is raked off. On one particular occasion I could not but observe, at the same time, the vast concourse of summer-birds which congregated in the field to assist in the destruction of the *Aphides;* black-caps, garden-warblers, white-throats, lesser white-throats, three sorts of willow-wren, etc. etc., all attended by their young, had here a sweet and rich feast.

Greenhouse and similar pot plants are subject to the visits of

Aphides; the infected plants should be removed to a close frame, and fumigated there, or they may be syringed over and under, as before mentioned.

THE FLORA OF SUMATRA.

BY W. MITTEN, ESQ.

WHEN I last wrote to you I promised to give you some account of my late trip to Sumatra, and I now sit down to fulfil that promise. The river I went up, the Indragiri, joins the sea on the east coast of Sumatra, in about 85 degrees south. It has four or five mouths, all of the size of large rivers, and between them are large islands, perfectly flat and hardly above water, covered with Nipa Palm, Mangroves, *Avicennia*, and other such amphibious plants. If there is anything else in the centre of them, which is unlikely, it will never be known, for they are too large to traverse in a day, and no human being could live a night in them, from mosquitoes and miasma, though they are inhabited by myriads of wild pigs and monkeys.

As you get a little further inland, these plants give way to another species of Mangrove, a very elegant plant, with long drooping branches like a willow, and rose-coloured flowers, which bears an eatable acid fruit, and grows in the water like Mangrove; it is an Anacardiaceous plant, with corky-skinned fruit, and very venomous juice. A little palmate-leaved Palm is also very common, and a few *Orchideæ* begin to appear on the trees; this is the region of the freshwater tide, after passing which a marked difference takes place in the vegetation, from the absence of the Anacardiaceous plant, whose bright red young leaves make it very conspicuous. The banks are now fringed chiefly with two or three species of *Arundo* and *Saccharum*, mingled with several species of *Phyllanthus*, in habit very much like willows, the whole matted together with *Ipomæa*, a small *Cucumis*, and a weedy-looking *Cissus*, or something of that kind. Plants here are very social in their habits. After the river's bank has been clothed for a mile or two as described, the grasses and climbers will vanish for a similar distance, giving place to a dense thicket of *Hibiscus propulneus*, one of the most beautiful plants we have, though very common; the flowers are large, golden yellow, with a deep puce centre; they are, however, in beauty early in the morning only, unless on a cloudy day, fading after a few hours' sunshine to a dingy dirty red. This in its turn will give way to a species of *Pandanus*, with long straight trunks, ten or twelve feet high, and very glaucous leaves; and here and there, where the bank has slipped down into the stream with the water-side vegetation, you get a glimpse among the tall trunks, green and grey with *Lichens* and *Hepaticæ*, into the dark swampy forest, tangled with huge creepers and reeking with vapour. I always used to contrive, if possible, to stop at one of these places to cook, because elsewhere I could not get into the jungle. But except *Cryptogams* there is little to be seen; below *Pipers*, *Pothos*, and *Freycinetias* are the principal visible plants, sticking close to the trees, and a few *Arums* and *Scitamineæ* are generally to be found growing in the mud and water. I got, however, a few *Mosses*, and abundance of *Hepaticæ*, but rarely in fruit; some of the latter, growing upon living leaves, are very curious. We went up the river four days before coming to any houses, which with their rice clearings materially altered the landscape; but there was not a hill to be seen two feet above the water.

The people are all Malays and Mahommedans, and are well off, and apparently happy. At this part of the river the prevailing features are the Cocoa-nut and Gomuti Palms, and vast plantations or rather jungles of Plantains; these are generally of a coarse seedy kind, but contain a great deal of farina, and are most valued as food, not as a luxury; wherever they are planted they soon take possession of the ground, to the exclusion of everything else, and are very ornamental, as they grow to a great height and size. A vast variety of fruit trees are cultivated, but very few vegetables; some species of *Luffa* and *Cucumis*, the common red *Pumpkin*, some *Capsicums*, and one or two species of *Celosia* and *Amaranthus*, used as spinach, are nearly all, except, of course, *Yams* and *Sweet Potatoes*, which are universal here. Of sweet-scented flowers, such as *Jasmines*, *Michelia*, *Tabernæmontana*, and several strong-scented *Anonaceæ*, they are very fond; the *Tuberose* is a prime favourite, but *Roses* are in no esteem—they are not strong enough for Malay organs. They make amends, however, for the paucity of their flower-gardens by cultivating a great abundance of medicinal plants, of real or fancied virtues, and about these they are never tired of talking; most of their properties are rather magical than remedial.

The object of my journey was to examine some beds of coals; so when I reached the Rajah's town, I asked him for a boat and men, mine being too big to go up the rivers. After two or three days' delay, without which no Malay ever did or can do anything, I got them, and away we went. It was a small canoe, about eighteen feet long, and just wide enough for two people to lie down abreast, rather closely packed; in this there were nine of us, so you may believe it was rather close work; but it was a delightful trip. We went up a smaller river called Chenaku; it was at first a black, alligatorish-looking stream, fringed chiefly with a *Ficus*, with small oval polished leaves, and little pink fruit, whose pendent roots drooped everywhere into the stream, which for a long distance was very tortuous. The jungle here was very fine; the most striking tree being an enormous *Terminalia*, with a candelabriform head, and a tall smooth trunk; this and an equally large Dipteraceous tree were the most common. *Calarui* were in great abundance, and some very handsome. I counted sixteen species, and nearly all different to those I knew at Labuan. There was also a splendid caulescent Palm, called *Ibul*, with a very tall straight stem, as white as ivory, and a noble light green head, but this we did not see until we got to the hills, nearly one hundred miles from the sea. Two species of *Calophyllum* were very abundant, and, being covered with blossoms, completely perfumed the air with scent of *Rosa canina;* a splendid scarlet *Ixora,* and a climbing sensitive *Mimosa,* with yellow-white stamens, four inches long, were among the most ornamental plants I saw; another, of which I sent seeds to Kew, was a Cucurbitaceous plant, with large brilliant scarlet fruit.

The river, after going up about three days, had become shallow and rapid, so as to make the navigation of our canoe rather hazardous at times, though the only risk was of a bath in the bright cold water, bubbling over a bed of white quartz pebbles, the very *beau idéal* of a trout-stream, and swarming with fish. Wherever the rocks came down to the water, they were covered with *Ferns*, many of them very beautiful; and I saw some majestic *Tree Ferns* here and there, but I had no means of drying them. Nothing is more remarkable than the wonderful quantity of fruit up this river, especially the celebrated *Durian;* my boat's crew almost lived upon them. They were so abundant as to be of no value, and we went ashore and helped ourselves, before the people's eyes, to the produce of their gardens, which was literally rotting in heaps. The *Rhambutan,* and six or seven other species of *Nepelium,* were in equal profusion, as were also a dozen *Miliaceæ.* A very abundant creeper was the India-rubber-producing *Urceola;* its fruit is about the size of an orange, and the colour of an apricot, the thick outer skin full of milky juice, while within are about eight or ten seeds, enveloped in a tawny pulp, tasting like wild bletted medlars; the natives use the juice only for birdlime. I came across two curious *Scitamineæ,* one with small yellow flowers, which were generally abortive, their place being supplied by a small tuber, which drops and grows; the other a dazzling little plant, only a few inches high, with a large bunch of scarlet and yellow flowers and bracts. Another curious plant of this tribe has large tufts of barren leafy stems seven or eight feet high, while the small red flowers hardly peep out of the ground, at several feet distant. The people here are probably aborigines, but have become Mahommedans, and call themselves Malays. They are very industrious cultivators and gutta-percha collectors; but though I was just in the district, I could not get them to show me the trees. They also procure Gum Benjamin; this I saw, and procured some seeds, which I have sent to Kew. They cultivate coffee, but do not use the berry; they make an infusion of the parched leaf, which is very pleasant and refreshing; of this prepared leaf I also sent home a specimen. I suppose there is no such country in the world for sporting as Sumatra; elephants go about in large herds, and deer, bears, tigers, pigs, and rhinoceroses are quite common. Should I go to work the coal, which is very possible, I shall, I suppose, become quite a Nimrod. The coal I saw was very good, and very easily to be worked, but unfortunately a long way from the sea.

Do you think a collection of Grasses and *Cyperaceæ* would interest botanists? They are very abundant here; I think I could certainly get one hundred and fifty species, probably more. I have indeed begun to collect specimens enough for twenty or twenty-five sets, and as I do this in my morning walks, which, without some such object, would become very irksome, there will be nothing lost if it will not succeed; if, however, you think it would do, I should feel obliged if you would be my agent in the matter, and make the necessary announcement, for I should think it would be best to send home the first hundred or so, as soon as collected; in the meantime I will go on for my own amusement. The collection of ***Mosses***, ***Hepaticæ***, and ***Lichens*** which I am making accumulates slowly, as there are but few species, and those not easy to get in fruit, but I keep adding one now and then; they now number about twenty species, but all are good specimens in a good state.—***Hooker's Journal of Botany.***

REVIEWS.

The Book of the Garden. By CHARLES M'INTOSH, F.R.P.S., etc. In two volumes. Vol. I., Structural, price £2 10*s.*; Vol. II., Cultural, price £1 17*s.* 6*d.* W. Blackwood & Sons, Edinburgh and London.

THE author, Mr. M'Intosh, was head gardener for many years to the King of the Belgians, at Claremont, and subsequently to the Duke of Buccleuch, at Dalkeith, and now a landscape gardener etc., in Scotland.

From the well-known abilities of Mr. M'Intosh we anticipated, on the first announcement of THE BOOK OF THE GARDEN, that the public would be furnished with a mass of useful and interesting gardening knowledge. We were satisfied that, being so extensively engaged in *every department* of gardening, and so close an observer of nature, he could not have been practically engaged for so many years without making a multitude of important observations on every subject connected with gardening that came under his practice or notice elsewhere. This anticipation has not been disappointed, but has been realized beyond our most sanguine expectations. After *carefully looking over* these two superb volumes, we hesitate not to state that it is one of the most ***really useful*** garden publications ever issued. It not only contains the substance of his own extensive practical knowledge, but he has very judiciously given the practical experience of all the celebrated gardeners who have written upon the various subjects, in modern times, and has had the candour to acknowledge the sources from whence he has obtained them; thus embodying not only the details of his own practice, but those of the ***best gardeners*** up to the present time. The arrangement of the work is good, and in order to furnish our readers with a fair specimen of it, we now give an extract of what is more especially connected with our own Magazine.

With the utmost confidence we recommend the BOOK OF THE GARDEN to all who desire valuable information on gardening in all its departments. The volumes are beautifully printed, contain about 1500 pages, and illustrated with 1350 admirably well-executed plates and woodcuts.

SECTION III.—HERMITAGES, ARBOURS, MOSS-HOUSES, AND SEATS.

These are all very pleasing and useful objects, particularly in extensive grounds. They not only serve as places of rest and shelter, but also as guides to the points from which the beauties of the surrounding scenes are to be seen to most advantage. The style of these erections must depend on the situation in which they are placed, or the situation must be selected for the intended erection.

In romantic and wild scenery rustic seats or houses should be placed; but where the hand of art has been more scientifically employed, a higher grade of accompaniments must be introduced.

"While the spectator rests," says Morris, in 'Essays on Landscape Gardening,' "the rustic or the decorated seat gives opportunities for examining some natural or artificial beauty which might not otherwise have received any particular attention. These resting-places afford to kindred tastes an opportunity of pointing out to each other innumerable effects and combinations that else might have been unnoticed. They are the points whence the highest gratification of the spectator is derived, and they contribute the most satisfactory reward to the landscape gardener."

The choice of garden seats, as well as of the spots on which to place them, requires a degree of taste and judgment apparently seldom bestowed on the subject. There should always be some kind of analogy between the seat and the scene of which it forms a part; and, for this reason, rustic seats should be confined to rustic scenery; and the seats for a lawn, or highly kept pleasure-ground, ought to be of comparatively simple and of architectural forms.

In the disposal of seats, some should be placed in the sun, and some in the shade; and, when placed by the sides of walks, gravelled recesses ought to be formed to receive them. All garden seats, except the rustic, should be painted stone colour, as harmonizing better with vegetation than any other colour; and, of all colours, the most unfitted for the purpose is green.

The hermitage is a species of resting-place, and was much more in vogue in former times than now. They associate better with grounds of the picturesque style than with any other. It may be said of them, as of all similar garden devices, that they have lost caste since the introduction of so many new plants. Formerly, when our gardens possessed few plants, art was called in to make up the deficiency in variety. Now plants have multiplied, and a different style of arranging them has taken place. The attention of the owner is pretty well occupied, during the gardening season, in making additions to his collection, and in arranging amd rearranging these, so as to produce a harmony of colouring, and to keep up that effect for as long a period as our short seasons will admit of.

All these kinds of structures have been condemned by most of our modern writers on garden arrangement and landscape; but, in peculiar situations, and under certain circumstances, they have their interest notwithstanding. However, like choosing the situation for a mansion, a temple, or a seat, or even viewing a painting hung against the wall, all depends on the position the object is placed in, and the point from which it is to be viewed.

Retired and sequestered situations are the proper place for a hermitage, and, at the same time, a position that could be easily defended in the event of intrusion, and from which some natural beauties can be seen. In this respect, the hermitage at the Falls of the Bran, near Dunkeld, as well as the one at the Falls of Acharn, near Taymouth, are excellent examples; while that which existed some years ago in the royal grounds at Frogmore was in as bad taste.

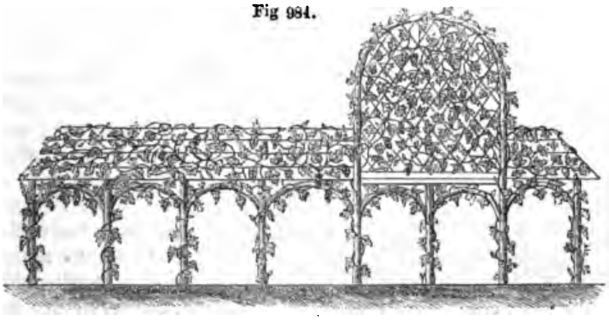
The furniture should be of the most simple description possible, and nothing artistical admitted excepting books; and these should be of the philosophic caste. The deception of placing imitation books, however splendidly they may be gilt and lettered on the back, may lead to deserved exposure.

Grottoes, like hermitages, are admitted as adjuncts into picturesque grounds. Those at Painshill and Oatlands were superb of their kind. The former was placed so that it could be approached by a boat from the river Mole, a portion of which flowed through it. It has long been suffered to go to decay; and the latter, once extremely rich in specimens of conchology, is now to be spoken of as a thing that was. It was entirely broken up, and the fragments sold a few years ago. It was buried in the side of a bank, and admittance gained to it through a labyrinth passage; and immediately in front of it was situated the grand royal cemetery of dogs, in which reposed the ashes of all the favourite animals of that family that had the good fortune to gain the love, affection, and esteem of their royal mistress, the late Duchess of York.

Caves, caverns, and subterraneous passages, in rocky localities, may be indulged in. The two former are to be regarded, in this country, more as singularities than places of enjoyment; but, in warm countries, they are amongst the first of garden luxuries.

Arbours, covered walks, and shaded resting-places come within the limits of picturesque grounds, if they are formed of living trees or shrubs. On the Continent, the vine is much used for this purpose; and so it may, to a certain extent, in the south of England; but beyond the midland counties, and in Scotland, the hop, clematis, ivy, honeysuckle, and climbing roses must be used as substitutes. The

Fig 984.



above figure, 984, displays the taste of the French and Germans in this matter, who in general place them against walls, and often carry them by a flight of steps to a considerable height, as in our figure.

In Germany, arbours are often fitted up amongst the branches of very large and old trees, and access got to them by means of a ladder. If study or privacy induce the visitor to ascend, the ladder can be drawn up, and so intrusion be prevented. We may here remark, that in general the terms arbour and bower have been considered synonymous: it appears that properly they are not. Mr. Mallet, of Dublin, frequently quoted in this work, says: "An arbour is a space covered and enclosed by the interweaving branches of trees, and reticulated stems of living plants, intended to afford shade and retirement. The words arbour and bower are properly very distinct, the former alone being formed of the living branches and stems of trees, whereas the bower, which is not derived from *bough*, or any analogous word, means simply any small chamber; yet they are used indiscriminately by the best writers."

The term bower seems, as it were, the word of poetry, in which it is frequently made use of; whereas arbour seldom is, if ever.

With us few natural arbours are to be met with. The least artistical are those formed by slightly arranging the pendent branches of the weeping ash, or similar-growing trees. A few props within, to support a rod or hoop, to carry up the pendent branches, is all that is required; and if these have too much the appearance of art, the smaller branches of the tree may be trained down upon them, or ivy may be planted and trained over them, and allowed to intermingle with the branches forming the roof.

The next kind of arbour for simplicity of form is that formed of tall, straight, young trees, of beech, hornbeam, mountain ash, willow, etc. These planted close together in a line, forming the back and sides of the purposed arbour, the front being in general left open, are bent over at the tops to form the roof, and tied together to keep them in their proper places. Sometimes the stems are crossed in trellis fashion, and after a time they unite by a species of natural engrafting, and become exceedingly strong, and will last for years.

Fig. 985.

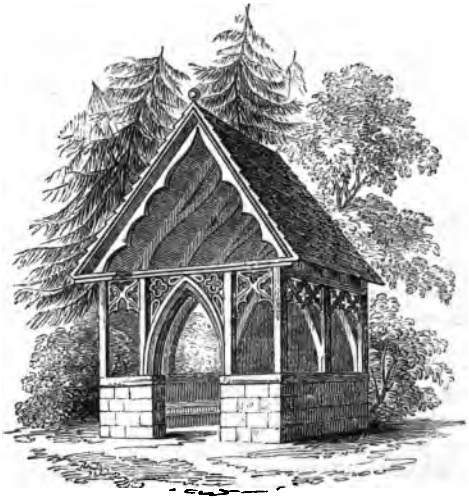


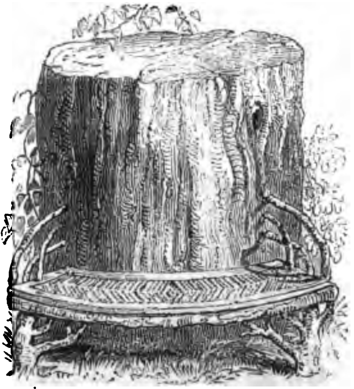
Fig. 985 represents a Gothic rustic arbour, or resting-place; the basement to be of stone, the superstructure of unbarked timber, and the roof thatched with heath. The floor should be pitched with pebbles in Gothic pattern, and the seats be made of oak plank. The authority last quoted says, in "Encyclopædia of Architecture," p. 986: "In the grounds of less ambitious villas, plain unarchitectural buildings may be employed; or wooden structures, simply protecting the seat from the weather, may be resorted to. In England, it has always been customary, since the introduction of the modern style of gardening, to form what are called rustic covered seats." And we may add, since flower-gardens have been conducted upon anything like correct principles, other rustic ornaments have been freely introduced, and, when properly placed and adapted to the situation, have given great interest to the scene. Out of the English or natural garden we, of course, would not any more tolerate them than we would a temple of Grecian or Gothic architecture, or a Chinese pagoda, in them. Rustic-work, however well designed and elaborately executed, would be preposterous in the grounds immediately surrounding Blenheim, Chatsworth, or Eaton Hall. Architectural mansions should have their architectural gardens; and architecture, of whatever order, has abundant stores of garden decoration without interfering with the rustic. These principles are, however, not strictly attended to; and hence we some years ago saw a rustic thatched summer-house placed in a flower-garden closely attached to the princely palace of Blenheim, and could adduce numerous other instances of the same bad taste. At the same time, there is nothing incongruous in rustic-work existing at Blenheim, if sufficiently removed from the house and all other architectural objects. There may be a natural garden at Blenheim as well as at any other place, but it ought to be as far removed from the mansion as possible. Indeed, in such large places, it is perhaps proper that such should exist, as it relieves the mind, and remedies the monotony of wandering through architectural alleys, vases, statues, fountains, and mural decorations.

Around cottage and villa residences, nothing is so appropriate as the natural style of gardening, and no ornament so proper as rustic-work; but that should always be of a substantial and tasteful description. An ingenious correspondent in "The Gardeners' Magazine," vol. x. p. 485, on this subject remarks: "One advantage of wooden rustic-work is, that it can be adapted to a great variety of purposes. Thus very beautiful, and even very architectural temples may be formed of unbarked wood. Ornamental doors, every description of garden seats, and flower-baskets, and vases of very elegant forms, may be composed of the same material. Shady walks also, having the shady gloom and enriched effect of a Gothic cloister, may be made of wooden rustic-work; indeed, there is scarcely any kind of garden ornament to which it may not be applied. I allude," continues this correspondent, "more particularly to what I call wood mosaic, which is, I believe, rather a modern invention. It is formed of split sticks, of various lengths and sizes, and having bark of different colours. The pieces are nailed to any flat surface of wood, and very beautiful and elaborate patterns may be produced by arranging the pieces according to their sizes and the various colours of their barks. Elegant garden seats, and vases of almost any shape, may be covered with this kind of mosaic work; but as it is not durable when constantly exposed to the weather, it is the most suitable for the inside of summer-houses and garden temples. In such situations, the richest specimens may be introduced, and, if varnished over, they would last for a number of years."

In corroboration of this, we may state that there are summer-houses in Dalkeith Park of this description that have stood uninjured for nearly forty years.

The garden seat represented in fig. 986 is the invention of the correspondent above alluded to, and, as he informs us in "Gardeners' Magazine," vol. x. p. 487, is placed against the stump of an old walnut-tree in his own garden.

Fig. 986.



Figs. 987, 988, and 989 represent other forms of rustic seats, which need no description.

Structures, such as arbours, moss-houses, etc., should be always placed in positions to command perfect view of some object of interest; indeed, this should not be lost sight of in placing seats and all other appendages, whether for shelter or repose. Some excellent structures of this kind have lately been erected through the very extensive and highly varied grounds at Drumlanrig Castle; and so capacious are some of them, that not only the family and their visitors, but their attendants also, can find shelter in them. There is a degree of humanity in having such shelters distributed through an extensive domain, as they afford shelter to the workmen in bad weather. Highly useful and ornamental, however, though they be, care must be taken, particularly in small places, that they do not appear too close together, as structures in any way relating to buildings are far more conspicuous than sculptural subjects. They require to be introduced more sparingly, and never without the appearance of obvious purpose or utility.

Fig. 987.

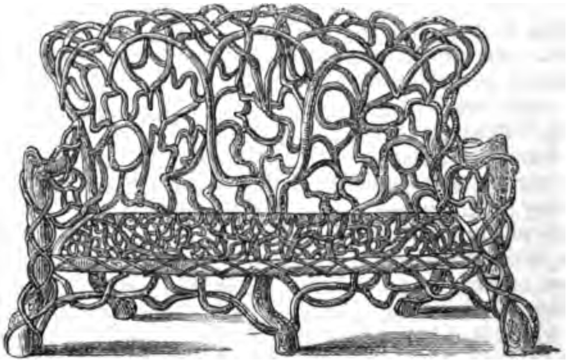
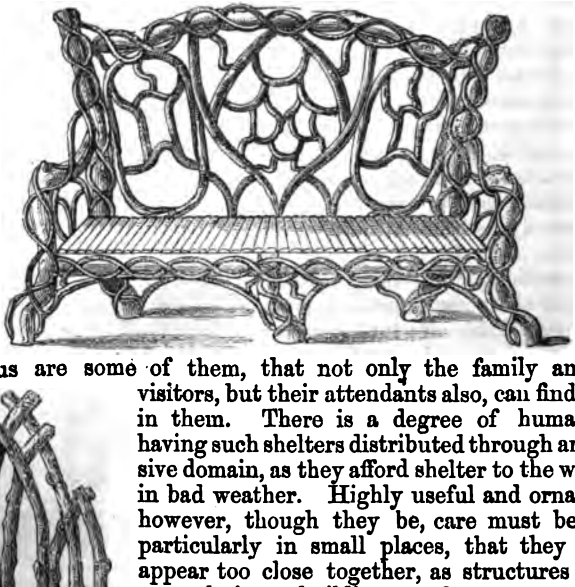


Fig. 988.



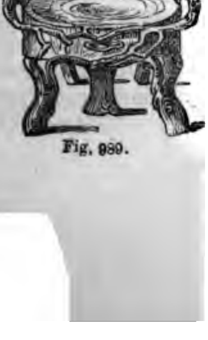


Fig. 989.

Fig. 990 is thatched with heath, attached to the timbers of the roof with tarred cord, but, for appearance sake, secured with four bands of rope made of Polytrichium commune, or any other similar strong-growing moss. The interior of the roof is first lathed, as it were, with hazel rods about one inch apart, into the spaces between which mosses of various colours are thrust firmly in; and by so doing, the whole of the roof is completely covered. The different colours may be placed in concentric circles or zones, or in any other pattern the artist chooses. The back and sides, as high as three feet above the seat, are covered with larch, hazel, or other straight-growing rods; and, if divided into panels, the rods may be so arranged as to produce any device desired; and, for the purpose of effecting this in a proper manner, that part to be so covered should be lined with boarding, and the device drawn upon it with chalk or black coal. The seat is supported upon rustic legs in front, and to the timbers of the structure behind; it is then covered with planking, and that with small rods similar to the back and sides. The front of the roof is supported upon columns of larch, oak, or any other kind of wood, having the bark on; the arches at top are easily constructed by using two pieces of curved wood; creeping plants are planted at their base, and trained over them and round the circular heads of the doorways. The spaces over the doorways may be either filled in with rods placed closely together, or in open lattice-work, according to taste.

Fig. 990.

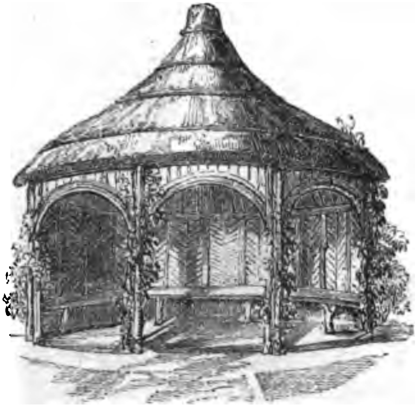


Fig. 991.

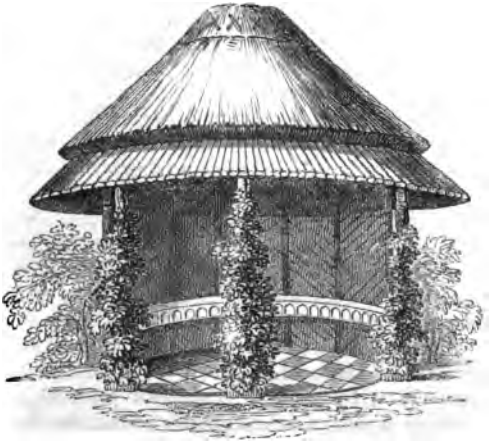


Fig. 991 is constructed much in the same manner, only the supports in front are set upon a stone plinth to ensure their durability. The seat and covering of the back and sides are covered with rods, laid in what is called the herring-bone fashion, as seen in the sketch. The roof is in two parts, the top part being thatched with reeds, and the lower part, after being boarded over, is covered with rods, so as to give that portion the appearance of a corrugated roof. The floors of both should be pitched with different coloured pebbes set in concrete or cement, and disposed in a tessellated manner.

Fig. 992.

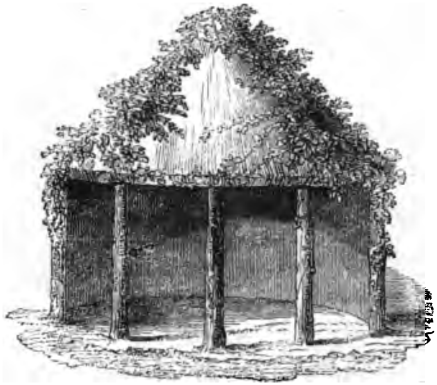
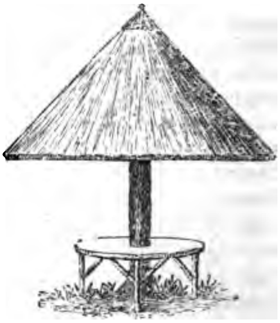


Fig. 992 is still more in the rustic style. One-half, which forms the front, is supported upon larch or oak posts, without plinth or pediment. The roof is simply thatched with heath or reeds, and the whole exterior nearly covered with creeping roses, clematis, etc. The whole of the inside is covered with moss of the commoner kinds. The floor may be clay or dark-coloured concrete.

Fig. 993 is supposed to be built round a living tree, or one whose top has been cut off on purpose. The interior structure of the roof is secured to the stem by having curvilinear ribs radiating from it, and propping up the rafters near their middle, much in the way of an umbrella when opened. The roof, for this reason, is light, and covered externally with heath, and internally with moss, taking care that the ribs are fully shown, and they themselves also covered with moss, or with the bark of some smooth-barked tree. The seat is in the usual rustic style.

Fig. 993.



Such resting-places may also be built in the longitudinal form, with a pavilion or hipped roof thatched with heath, which is by far the best, as it is also the most durable, of all coverings. The sides all round are divided into panels, the uprights or supports forming the principals, and the diagonal pieces the subordinate ones. The spaces between, being filled up with larch or oak pieces of half the diameter of the uprights and diagonals, will show the same pattern on both sides. Resting-places of this description are very easy of construction.

Fig. 994 shows the elevation of a very elaborate moss-house in the grounds at Dalkeith Palace. It is now thatched with straw, but was formerly with heath. The roof projects four feet over the walls, forming a piazza or colonnade round the four sides, and is supported in front with oak rustic columns, and curvilinear brackets between.

The floor is laid in manner of a brick floor along the front and ends.

Fig. 994.

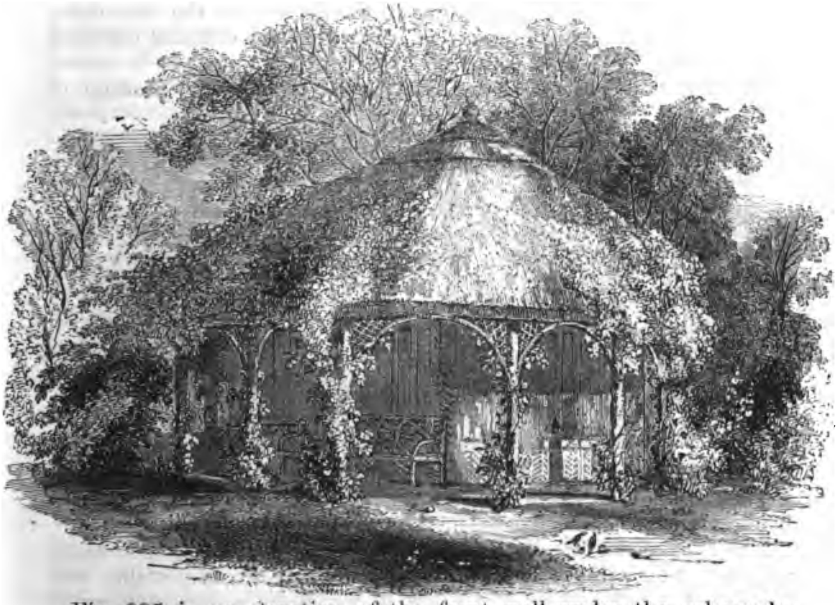
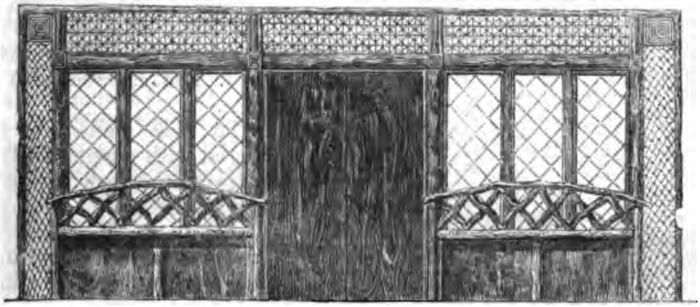


Fig. 995. is an elevation of the front wall under the colonnade,

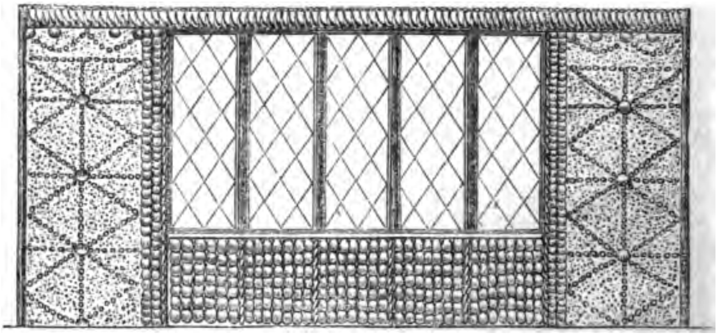
Fig. 995.



showing the casement windows, of which there are four in the building, the other two being placed one in each end. In front of these two windows are placed two rustic seats with open backs, which protect the glass, and, at the same time, do not much exclude the light. The mullions and frames of these windows are of oak, with the bark carefully preserved. The other parts are, as usual, of lead and iron, the centre part of each opening for ventilation. The door is in two parts, and simply covered with thick pieces of oak bark on both sides. The door frame is the same as that of the windows. The three panels over the door and windows are inlaid with pieces of oak, each cut into four sections, as are also the margins at the two ends. The roof of the colonnade all round is covered with different coloured mosses within.

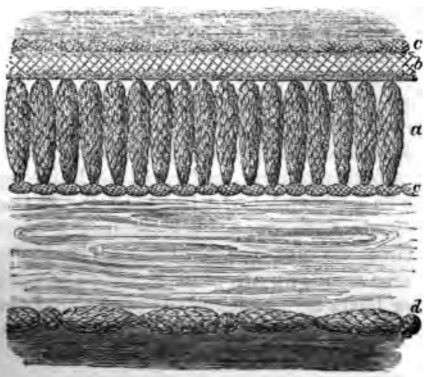
Fig. 996 is the elevation of the two ends, showing the position of the windows. The surface is covered with shells, set in plaster of Paris, those under the windows being oyster-shells, the outer parts being done with smaller ones, found abundantly by the sea-side.

Fig. 996.



The floor of the interior is of brick, not by any means in accordance with the other parts of the building. The seats are all portable, and consist of a sofa and six chairs, two of which are representations of arm-chairs, hollowed out of the trunks of two old oak trees, very much covered with excrescences; the others are light chairs, formed of hazel, and the seats cushioned with Polytrichium commune. The sofa is also cushioned with the same, the back being open wicker-work. The table is circular, set on a clawed stand, and covered with a matting of polytrichium.

Fig. 997.



The side walls are all covered with moss. In the centre of the back wall is a representation of a ducal coronet, done in fir cones. The roof is of Sphagnum palustre, a white moss; and in the centre is a stag, three-fourths of the natural size (the crest of the Scotts of Buccleuch), done in a very ingenious manner with small rods of young larch. A cornice runs round the interior, formed of spruce cones (fig. 997 *a*), with those of Pinus sylvestris, or Scottish fir (*o o*), and of both alternately, as at *d*, and square knobs of oak, divided into four sections, as at *b*.

Summer-houses are and may be constructed in a great variety of forms and of different materials. Very neat resting-houses may be formed of four-inch quartering, set upon a base of brick or stone, so as to raise the timbers one foot from the ground. These may be lined on one or both sides with boarding, and that covered with imitation basket-work, or designs formed of larch, oak, hazel, or any other wood, selecting the smooth branches; or, if desired, it may be covered with cones of various species of pines, so arranged as to produce a very pleasing effect. The rough bark of trees—oak, for example—may be used to cover the whole, or the sides may be divided into panels, with pieces of branches or cones, and the panels filled in with smooth or rough bark, according to fancy.

Similar houses may also be constructed, by covering the quartering with lath, and plastering with good sound hair plaster, the surface of which, while wet, may be dashed with clean gravel, pebbles, small shells, scoriæ, spars, etc., sifted so as to be of a uniform size. Shells of various kinds are often used for such purposes, and are stuck in while the plaster is soft, and very pretty devices are often formed by them. As this work requires to be done expeditiously, it is necessary to have the shells sorted and close at hand; and to render the pattern or design as perfect as possible, it should be traced on the plaster first; and this process will be much facilitated, if the pattern is cut out in sheet-iron, thin boarding, etc., which being laid on the plaster, the lines can be traced with great accuracy and dispatch.

Again, great variety of design may be given to the plastered walls. "Lines may be drawn by the trowel, straight, wavy, angular, intersecting, or irregular. Stripes, checks, squares, circles, or trellis-work may be also imitated. Wicker-work is a very general subject of imitation, and this is produced by pressing a panel, generally a foot square, of neatly wrought wicker-work against the plaster when moist. It is evident that this description of ornament might be greatly varied and extended, and that, instead of the panel of wicker-work, wooden plates, of patterns such as those used by room-paper printers, might cover the walls with hieroglyphics, with sculptures of various kinds, with imitation of natural objects, or with memorable or instructive sayings, or chronological facts."—*Encyclopædia of Villa Architecture.*

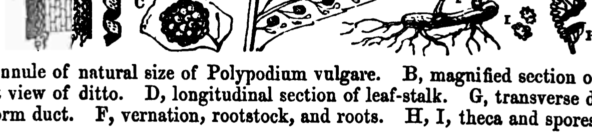
Such walls may have the appearance of age given them by the process called splashing; but in this case they require to be thoroughly dried, if the splashing is to be composed of glutinous material, or in oil colours, which are by far the most durable. If splashing is to be done in water colours, it matters not whether the walls be dry or not. As a general rule, in splashing or even plain-colouring walls with oil colours or with glutinous material, the walls should be thoroughly dry, and it should be done at a season when they are not saturated with moisture. "The reason for these rules is, that water colours do not impede the evaporation of moisture from the wall, and the absorption by the mortar of carbonic acid gas, by which it is hardened and rendered durable; while glutinous colours, by closing up the pores of the surface, do both."

An Analysis of the British Ferns and their Allies. By G. W. Francis, F.L.S. With Engravings. Fifth edition, revised with Additions by Arthur Henfrey, F.R.S., F.L.S., etc., Professor of Botany, King's College, London, and Lecturer on Botany at St. George's Hospital. With an additional Plate of the latest Discoveries. London: Simpkin, Marshall, & Co., Stationers' Hall Court. Price 5*s*.

We have had the pleasure in previous volumes to recommend to our readers four editions of Mr. Francis's excellent work on British Ferns, and we feel much gratified to know that the book has been universally approved of, by the best of tests, viz., the rapid sale of the whole of the last edition, and an increasing demand for a fifth edition to be issued. That want, however, is now amply provided for, and useful and interesting as the previous successive editions were, displaying the admirable capabilities of Mr. Francis for the work he undertook, we are pleased, after carefully examining this fifth edition, to have to assure our readers that its value is much increased by the acquisition of the revision and additions made by one so eminently qualified as Professor Henfrey. All admirers of this very interesting tribe of plants ought to possess this book. Its excellence and *cheapness* combine to its acceptableness. There are other good and extensive works on Ferns, but *costly;* this, however, contains everything requisite to a knowledge of the plants it comprises. The figures of the *species* are given from well-executed copper-plates, and the *generic character* from wood. We here give a specimen of the work, accompanied with its clear and comprehensive details.

POLYPODIUM, Linn. POLYPODY.

(Πολυς, many, and *πους, ποδος*, a foot; from its numerous roots.)



A, pinnule of natural size of Polypodium vulgare. B, magnified section of a sorus. C, front view of ditto. D, longitudinal section of leaf-stalk. G, transverse ditto. E, scalariform duct. F, vernation, rootstock, and roots. H, I, theca and spores.

Sprengel enumerates no less than 250 species of this genus; all of them are herbaceous, some a few inches only, and others several feet in height. Inhabitants of most parts of the world, particularly of the islands within the Tropics; several are found on the continent of America, and a few are confined to China. Only four species are British.*

1.—POLYPODIUM VULGARE.

COMMON POLYPODY OF THE OAK. WALL FERN.

(Plate I. fig. 2.)

Cha.—Leaf deeply pinnatifid, lanceolate. Lobes broadly linear, obtuse, somewhat serrated. Leaf-stalk smooth. Rootstock hairy.

Syn.—Polypodium vulgare, *Tourn.*, *Ger.*, *Park.*, *Ray*, *Linn.*, *Huds.*, *Lightf.*, *Plum*, *Swz.*, *Spreng.*, *With.*, *Smith*, *Hook.*, *Mack.*, *Gray*, etc.—Ctenopteris vulgaris, *Newm.*, 1854.

Fig.—*E. B.* 1149.—*Flo. Dan.* 1060.—*Woodv. Med. Bot. supp.* 271.—*Ger.* 467.—*Bolt.* 18.—*Plu. Fil. t. A. f.* 2.

Des.—Rootstock creeping horizontally, at first covered with scales, and numerous stout, branched, hairy root-fibres. Leaf-stalk quite smooth, yellow, void of lobes half-way up. Leaf from six to twelve inches high, lanceolate, scarcely contracting below. Lobes broadly linear, obtuse, and slightly serrated, sometimes wanting the serratures, at others acuminate, while occasionally they are found very much cut and divided. Sori naked, yellow, large, prominent, and arranged in straight lines equally distant from the margin and midrib of the lobe; each sorus terminating one of the branches of a transverse vein. The plant is perennial, and the fruit found throughout the summer.

β. (*P. Cambricum*, *Linn.*) Leaf ovate; pinnules ovate and deeply cleft. (A, B.)
γ. (*sinuatum.*) Leaf ovate or triangular; pinnules proliferous. (C, D.)
δ. (*serratum.*) Pinnules distinctly and often doubly serrated.
ε. (*acutum.*) Pinnules pointed; leaves long; both narrow. (E.)
θ. (*bifidum.*) Pinnules cleft at the point. (F.)

Mr. Mackay remarks, in his "Flora Hibernica," that the Irish plant is somewhat different from the *Polyp. Cambricum* of Linnæus. It is in fact our variety γ, which is the same as the *Pol. Virginianum of Pursh*, and intermediate between the usual state of the plant and the *Cambricum;* it bears fruit copiously, whereas the real *Cambricum* is usually without fruit, both in its wild and cultivated state. We might expect this, indeed, from the feather-like appearance of the plant, and the dilatation of its lobes, a too great expansion of leaf being here as elsewhere detrimental to the production of fruit. The foregoing observation was made in distinct reference to a frond, of which C, in the annexed cut, in an exact representation; but a plant still more nearly approaching Linnæus's *Pol. Cambricum* is in Sir J. Smith's Herbarium marked as from Ireland. A pinnule is represented in the fig. D, copied from the original specimen: an admirable figure of the whole frond, as well as of the *Cambricum*, is in Newman's "Ferns," p. 22 (45, ed. 1854). One pinnule of the latter is represented at B, and a whole frond of it, from my herbarium, at A. The other varieties are shown at E, F, and G.

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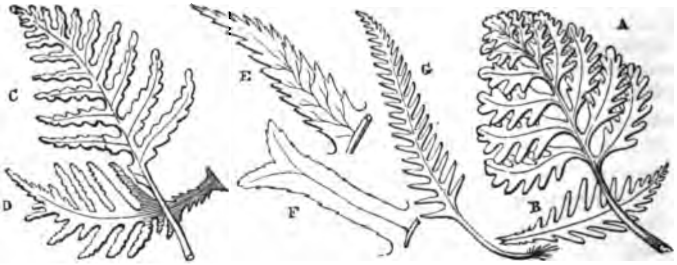
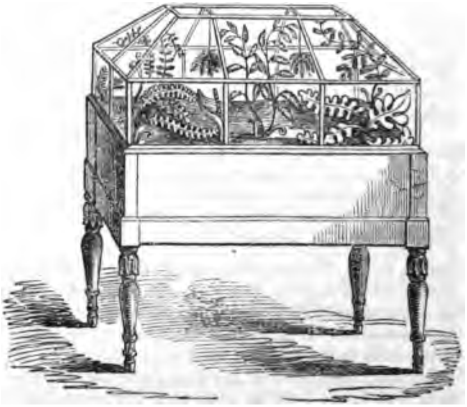
* The number of species in a genus is always subject to variation, particularly in one so extensive as Polypody, as newly discovered plants are always adding to the number, while different classification often divides one genus into many.



Vir.—Although formerly admitted into the Pharmacopœias, it is scarcely, if at all, used in medicine at the present day. It is feebly astringent, of a bitter and nauseous taste, and has been considered efficacious in catarrhal disorders, and against worms, in doses of from one to two drachms of the dried root.

Hab.—The common states of the plant (α and δ) are generally distributed over the United Kingdom, on trees, walls, banks, and rocks.—β. On the rocks in some parts of North Wales, but without fruit. Braid Hall, near Edinburgh, *Mr. Brown.* At Chepstow, Monm., *Sir J. E. Smith.*—γ. Woods at Dulwich (1835), *Mr. Sanders* and *Mr. W. Pamplin.* South Isles of Arran (1806), *Mr. Mackay.* In the Dargle, county of Wicklow, *Miss Fitton.* Innisfallen Island, Killarney, *Mr. Kelly.* South side of King's Park, Edinburgh, *Mr. Brown.*—ε. Rocks in North Wales, *With.* Meadows near Maldon, and other meadows near Ewell, Surrey, *M. J. Bevis.* Cobham Park, Kent, *G. F.*

Geo.—Found in most of the middle parts of Europe and North America.



THE WARDIAN FERN CASE.

NOTES FROM KEW.

BY MR. W. S. PRESTOE.

Canna Warscewiczii. Nat. Ord. *Marantaceæ.*—Leaves very long, from nine to fourteen inches, of an oval shape; the midrib is a rich purple-crimson colour, the stalk rises from three to five feet high, and the same colour as the midrib of the leaf. At the summit there is a large truss of bright scarlet flowers, which are exceedingly showy and ornamental. There is a very extensive collection of Canna here; many of them are valuable acquisitions to the stove, especially the above species. It succeds well in a compost of leaf-mould and peat, with a small portion of loam, also a good quantity of silver sand.

BERBERIS BEALII and B. JAPONICA. Nat Ord. *Berberidaceæ.*—These are good species, if they can be called *distinct* species, which I doubt, as there is not distinction enough; however, they are worthy of cultivation. The leaves are pinnate; the first are about nine inches long, the others are not so long, but the colour is darker. The flowers are borne in very large trusses, of a rich yellow colour. The plants have been in a cold pit during the winter, and flowered well for small plants. If they prove hardy they will be a great acquisition to the shrubbery.

TRADESCANTIA FUSCATA. Nat. Ord. *Commelinaceæ.*—Leaves ovate, acuminate, thickly covered with brown-coloured hairs. It is a dwarf herbaceous plant, and from the centre or crown of the plant arise several flowers upon solitary peduncles, about two inches high. The flower is of a beautiful bright blue. It is a very pretty dwarf stove plant, and of easy culture.

DOMBEYA VIBURNIFLORA. Nat. Ord. *Byttneriaceæ.*—It is a large plant, twenty feet high, in the large palm-house. The leaves are large, palmate-shaped. Flowers in trusses, of a light yellow colour. It is only fit for large houses.

In the orchid house the undermentioned are in flower, and diffuse a delightful combination of perfumes; on entering the house it reminds one of the oriental gardens we read of in some interesting works, especially in the morning. There is a noble specimen of *Dendrobium speciosum,* having twelve large spikes of flowers, some of the spikes are nearly two feet long. *D. fimbriatum,* var. *oculatum.* This is a charming species, its bright golden flowers are produced very freely. *Dendrochilum glumaceum* is a very pretty little species, and although the flowers are not very conspicuous, the perfume is very similar to a ripe pear when it is just in its prime. *Oncidium cebolletum* and *O. sphacellatum* are two good species, being very free both in growth and flowering. The colour of the flowers is very brilliant. *Maxillaria picta, M. squalens, M. Parkerii, M. variabilis-lutea,* with some others of less note, all of which are sweet-scented, and very free-growing species.

In the greenhouses the collections begin to wear a lively appearance. The very extensive collection of Acacias begin to show their beautiful golden dress, and amongst the best now in flower I may mention *A. affinis,* a plant twenty feet high; its bright golden heads of flowers have a grand appearance. *A. smilacifolia,* flowers light straw colour; *A. mucronulata,* flowers light yellow; *A. uncinata,* flowers of a very bright yellow; *A. suaveolens,* flowers light yellow, sweet; *A. asparagoides,* flowers rich yellow. In addition to the

Epacris I before mentioned, there are *E. impressa, densiflora*, and *incarnata*, a very charming variety, the flowers a light carmine. There is a seedling raised here, which is a charming variety, the flowers a very light beautiful pink colour. *E. magnifica;* this, too, is very beautiful. *Camellias;* there are a great number now in perfection, and amongst the best are the following: *Emma*, white; *Imbricata-rubra*, red; *Lecana-superba*, bright red; *Sacca-nova*, flesh colour; *Amabilis*, red; *Sweetii-Colvillii*, pink striped with red; *Elegans*, white; *Prattii*, rose and white stripes; *Eclipse*, white with rose stripes; *Colvillii*, mottled pink striped with red; *Rubro-superba*, bright red; *Imperialis*, white; *Picturata*, rose. All the above should be in every collection.

NEMATANTHUS MORELLIANUS.—Leaves ovate-lanceolate, opposite, of a very dark shining green; from the axil of each leaf arises a peduncle about three inches long, at the extremity is a fine large beautiful crimson-coloured flower. The calyx is of a dark red, and thinly covered with grey hairs. It is a beautiful stove plant, and flourishes well in loam, leaf-mould, and peat, with a good supply of silver sand.

THEOPHRASTA LONGIFOLIA.—Leaves ovate-lanceolate, from sixteen to twenty inches long; they are thickly set upon the summit of the plant, which is about four feet high. Below the leaves the trunk is thickly set with racemes of bright orange-coloured flowers. It is an excellent plant, and merits a place in every stove.

STIFFTIA CHRYSANTHA.—Leaves ovate, undulate. Flowers in dense heads, of a bright yellow colour.

DOMBEYA VISCOSA.—This is a large tree, eighteen feet high, thickly set with large globular heads of white flowers. In the stove.

BESLERIA ARDENS.—Leaves opposite, ovate, serrate. Flowers in corymbs. Corolla tubular, of a bright orange colour. This is a very good stove plant.

LOPEZIA MACROPHYLLA.—Leaves alternate, ovate-lanceolate. Flowers are borne at the extremities of the shoots in profusion, of a bright vermilion colour; it merits a place in every stove. There is a great number of other plants in bloom, but I shall only mention some of the best. The following are excellent: *Gloxinias—G. Teuchleri*, dark rose, throat carmine, the outside of the flower having blue stripes; *G. candidissima*, pure white; *G. elegantissima*, white with a blue throat—it is a very fine variety; *G. Eleanor*, white with a rose throat; *G. Eugenia*, light pink, throat white spotted with rose—it is a most excellent variety; *G. Passinghamii*, purple, throat a very dark purple; *G. Maria Van Houtti*, white, throat carmine—it is a charming variety; *G. discolor*, light lilac—the under side of the leaves are of a beautiful crimson colour; *G. Sir C. Napier*, rose, throat deep carmine—a splendid variety; *G. Victoria regia*, white, throat blue, flowers very large, a superb variety; *G. Argyroneuro splendens*, purple, foliage beautifully marked with silvery stripes.

Franciscea Hopeana, F. hydrangeæformis, the beautiful *Thrysacanthus stricta*, with its bright scarlet flowers—really a most charming plant—and the pretty *Canna Indica*, are in fine bloom. There is a splendid plant of *Maranta sanguinea*, four feet high, with its splendid foliage, and quite loaded with large spikes of scarlet-crimson flowers. I have heard persons complain that they cannot well succeed with this plant, I will therefore give a few remarks, in an early number, on its cultivation. There is also the king of trees in flower, viz., the *Amherstia nobilis;* a noble plant, with long racemes of beautiful flowers and splendid foliage. It should stand next to the *Victoria regia* in estimation. It requires a good strong heat and plenty of moisture, or else the sulphureous gas which arises injures the tops of the young leaves, and causes them to turn brown, and thus injures the growth of the plant.

In the orchid house, amongst the best now in flower, there is the splendid *Vandateres* and the pretty *Acanthophippium sylhetense*, and the charming *Phalænopsis amabilis*, *Phajus Wallichii*, *P. grandifolius*, the charming *Maxillaria sanguinea*, the sweet-scented *Bolbophyllum umbellatum*, and the sweet *Octomeria teretifolium.*

In the greenhouse there is too great a number of plants to be mentioned now, so that I shall confine myself to the best amongst the *Acacias. A. celastrifolia*, one of the very best; *A. riceana*, flowers light yellow; *A. lineata*, bright yellow; *A. Drummondii*, the best of all; *A. rotundifolia*, bright yellow; *A. floribunda*, light yellow; *A. cynosum*, bright yellow; *A. grandis*, deep yellow; *A. diffusa*, light yellow; *A. macronulata*, light yellow; *A. uncina*, rich yellow; *A. cultriformis*, deep yellow; *Polygala ligularis;* the pretty *Bossiæa cordifolia*, *Chorozema cordata*, *C. elegans*, *C. flava*, *Pomaderris lanigera*, *P. elliptica*, *Ziera macrophylla*, *Barosma dioica*, *Selago distans*, *Hovea purpurea*, *H. ferruginea*, *Pultenæa subumbellata*, *Platylobium formosum*, *Boronia anemonæfolia*, and a pretty Cape bulb, *Lachenalia tricolor.*

Numerous are the Alpine plants in bloom out doors; amongst the best are, *Draba cuspidata*, bright yellow, flowers growing four inches high. *D. aizoon*, flowers yellow, three inches high. *Cardamina trifolia*, leaves very dark green, flowers white, six inches high. *Arabis albida*, flowers white, about six inches high. *Primula denticulata* is a very pretty plant; the peduncle is about five inches high, with a large globular head of lilac-coloured flowers.

MISCELLANEOUS.

Essential Properties of Florists' Flowers.—Having been an exhibitor at floral shows for many years, and aware of the necessity of a uniformity of taste amongst all the societies of florists, I have sent the following, being *rules* framed for the local Society to which I belong, and by which the flowers exhibited are adjudged, in hopes of their being useful to other societies, and if any improvement can be suggested by the reader, I shall be glad to see such particular in an *early* number of this Magazine; also on any other flowers not included in my list, but which it is considered ought to be added thereto, in order to have the rules as perfect as possible. Such rules will not only be useful to judges at such exhibitions, but will be a guide to the amateur florist as to his purchasing what are of approved merit.

"*Hyacinths.*—A fine Hyacinth should be of a compact pyramidal form, strong stem, supporting numerous large bells in a horizontal position, the uppermost bell erect, the bells rather convex than flat or hollow; the colours clear and bright. Those flowers presenting a contrast of colour in the centre of the bells are most esteemed; only one stem is allowed to each bulb when exhibited for show.

"*Auriculas.*—The pips should be large, flat, and round, with ground colour equal on every side of the eye, which should be quite circular, *as well as the edge.* The tube a bright lemon-yellow, perfectly *round*, well filled with the anthers or thrum, the eye round and large, the body colour black or violet, the meal fine; the colour, in green-edged flowers, should be a whole one, not a shaded green. The stem strong and sufficiently long to bear the truss above the foliage—the truss to consist of not less than five full-blown pips; only one stem allowed.

"*Polyanthuses.*—The pips large, flat, and round, with small indentures between each division of the limb, dividing the pip into heart-like segments, edged with bright yellow; the edge and the eye ought to be of the same colour; the truss to consist of not less than *five* full-blown pips, supported on a strong stem, standing well above the foliage.

"*Tulips.*—The flower large, and composed of six petals; these should proceed horizontally at the base, and then turn upwards in the form of a goblet—rather widest at the top. The three exterior petals larger than the interior ones; the edge of the petals well rounded, or with a little indenture at the top. The ground colour of the flower at the bottom of the cup perfect white or yellow; and the various colours, whether stripes, flames, feathers, or blotches, should be very fine, regular, or bold and distinct, or else elegantly pencilled.

"*Anemones.*—A fine flower should be two inches and a half in diameter; the exterior row of petals should be large and well rounded; the centre of the flower well filled up; the bloom of a hemispherical form; colours clear and distinct.

"*Ranunculuses.*—The flower ought to be two inches in diameter; the lower tier of petals broad, and gradually diminishing in size as they approach the centre, which should be well filled up with them. The bloom ought to be of a hemispherical form; the petals not widely separated, nor too close to appear crowded, and to have a pyramidal direction, in order to display their colours; petals broad, with perfect edges; colours rich, clear, and brilliant, or if of two colours, clear and distinct.

"*Pinks.*—The petals large and well rounded; edges free from notches; the colours distinct and clear. In laced Pinks, the lacing must be continued round every petal without a break; in *plain*

Pinks, the colouring should be confined to the centre, and no portion on the edge of each petal; in rose Pinks the dark colour ought, as in laced Pinks, to be continued, without a break, round every petal.

"*Carnations.*—The flower large, consisting of a number of well-formed petals, neither so many as to give it a crowded appearance, nor so few as to make it appear thin and empty; the petals broad and stiff; the guard one well rounded, and should rise a little above the calyx, and then turn off gracefully in a horizontal direction, supporting the interior ones, which should gradually taper towards the crown. Bizarres must have three colours in every petal; flakes two; colours strong and bright; the stripes clear and distinct; the fewer freckles or spots the better; all the colours nearly equal, or the most brilliant colour should predominate; the white pure and bright.

"*Picotees.*—The same qualities as to size, petals, crown, and clear white ground, as the Carnations; edge of petals smooth and well rounded. Those flowers which are free from blotch or stripe down the petal, below the coloured edging, are greatly to be preferred to those which are marked and pouncy.

"*Dahlias.*—A fine flower should be of a perfectly circular form; the outer petals stiff, well rounded and cupped—not too much so as to present a quilled appearance—and well filled up to the centre, not in the least degree showing the eye; neither should the eye be at all sunk or flattened, but rather elevated above the other parts when in full bloom; the whole flower presenting a true circle when viewed above, but of a hemispherical form when observed at the side. Those flowers possessing two colours to have them clear and distinct."

BRIEF REMARKS, &c.

TO DESTROY ANTS.—Having read complaints against ants, I am induced to send you the following:—Some time ago, a drawer, in which I kept some sugar, was so much infested with ants, that we were obliged to remove the sugar from it. It happened, from some cause or other, a small bit of camphor was laid in the drawer, and on opening it a few days afterwards, we were agreeably surprised to find the bottom literally covered with dead ants. This induced us to try the experiment, and from that time we have kept the sugar free from their depredations without any difficulty, by allowing a small piece of camphor to be in one corner of the drawer. Where trees upon walls, or plants, are infested, I should recommend small pieces of camphor to be thrown on the ground round their stems, and in some cases to dissolve a little in alcohol and sprinkle it over the leaves, in a diluted state, with a common syringe.

SUPERPHOSPHATE OF LIME AS MANURE.—A remark, worthy of your particular attention, and those who receive foreign seeds, is made in the Horticultural Society's Journal, that if a small portion of superphosphate of lime is mixed with seeds when sown, in sufficient quantity to give them the appearance of being limed over, the seeds germinate quicker and stronger, more especially in the case of old seeds; and also that the plants are less liable to damp off, or be injured by insects. Try it. From some experiments we have made, we have no doubt that this substance will be found to have peculiar influence in causing an early and abundant formation of roots, and if a small portion be sprinkled in the soil into which shrubs or trees are transplanted, it will be found of much utility in preserving life.—*P. Robertson.*

Large Cockscomb (*Celosia cristata*).—Not having seen any accounts of large Cockscombs during the past twelve months, I herewith send you the dimensions of one I grew last year, of the tall sort. The height of the plant to the bottom of the flower from the surface of the mould, two feet six inches, height of flower sixteen inches, total height three feet ten inches, length of flower over the crown, from one point to the other, two feet, and one foot ten inches across; and if the flower had been laid upon a board, and each convolution of the flower straight along, it would have measured upwards of forty-four feet and a half. The compost in which it grew was maiden loam, rather sandy, and the old dung of a mushroom bed, rather more than one-half. I had several more, none of which measured below seventeen inches, and one in particular, of the dwarf sort, eighteen inches high from the mould, had six flowers. None of them was below eight by four; the largest was sixteen by eleven inches. I have some of the flowers retaining the colours as bright as they were on the day they were cut, although not so large.

The Weeping Willow.—It is said that the Weeping Willow was introduced by Pope, and that the celebrated tree which stood in the poet's garden, at Twickenham, was raised from a cutting, forming part of a basket or package sent from Spain. On the arrival of the basket, Pope observed apparent life in some of the twigs, which he accordingly planted, adding, "perhaps they may produce something we have not in England." From this sprig sprang up one of the finest specimens in this country, celebrated as the "Poet's Willow," which soon became the grandsire of thousands.

Kew Gardens.—In the estimates of civil contingencies for the financial year 1855—56, there are two items—one of £13,569 for the Royal Botanical Gardens at Kew, and another of £1544 for the Royal pleasure-grounds at the same place, making a total of £15,114. Sir W. J. Hooker's report on Kew Gardens for the year 1854 is appended to this estimate, and a few particulars may be extracted from it for the information of our readers. Sir William shows that the number of visitors annually is constantly and steadily increasing, the number in 1854 having amounted to no less than 339,164, against 9174 only in the year 1841. In 1843 the number of visitors was 13,492; in 1844, 16,114; in 1845, it increased to 28139; in 1846, to 46,573; in 1847, to 64,282; in 1848, to 91,708; in 1849, to 137,865; in 1850, to 179,627; and in 1851 (the Great Exhibition year), to 327,900. In 1852, the number fell to 231,210, but in 1853 it again rose to 331,210. The great increase in the year 1853 is to be ascribed to the Sunday admission. The number of persons who visit these beautiful gardens for study and instruction (especially artists) has increased in the same proportion, and to various Government schools of art and design supplies are continually sent from the gardens for the use of their pupils in London. In novelties and rarities the gardens have received as many additions as in former years, and the augmentation of the collection compels Sir W. J. Hooker to ask for more accommodation to the greenhouse plants from temperate climates, and especially those of a large size, such as scarce tender pines and Australian trees and shrubs. The pleasure ground adjacent to the garden, occupied for the last four years as an arboretum, devoted to all kinds of foreign trees and shrubs that will bear our climate, has its growing attractions. The rough ground bordering on the Sion Vista has been levelled and formed into a lawn; the planting is finished, and a large number of the trees and shrubs have been labelled with the names of the genus and species, in Latin and English. The Museum of Practical or Economic Botany has prospered, and is a source of usefulness as well as gratification to our merchants and to scientific persons. Not a day elapses without the receipt of applications for information about the useful woods, oils, fibres, gums, resins, drugs, and dyestuffs of which the stores and greenhouses contain the living sources, and the museum the products, all authentically named. A new feature in connection with the Royal Gardens remains to be noticed. This is the presentation in 1853 and 1854 of two valuable libraries and herbaria, by the sister of the late Dr. Bromfield, of the Isle of Wight, and Mr. George Bentham, of London. Till 1853 the garden was utterly destitute of these two very necessary, if not indispensable appendages. Both are now available, under proper restrictions, for the public service, and are accommodated and conveniently arranged within the precincts of the garden. The benefits of this arrangement have already been experienced by botanists, students, and persons of all grades. Among the more important contributions to the library in 1854 may be mentioned a splendid collection of drawings, given by Miss Cathcart, made in India under the direction of the late Major Cathcart; a set of 2188 drawings of Kew plants, presented by Mr. W. Attwell Smith; and the entire botanical correspondence of the late Dr. Wallich, during his twenty-eight years' superintendence of the gardens at Calcutta, bequeathed by the learned doctor to the gardens. Visitors of all grades, reports Sir W. Hooker, evince by their generally good conduct their thorough enjoyment of the gardens. To our own colonies the books show that they have contributed extensively, by the dispersion of useful plants and trees in climates suited to their growth, wherever our trade and commerce reach.

Camellias for Stocks.—The *Camellia reticulata* you will find *very eligible* for this purpose, on account of its strong growth. It is a kind, too, that succeeds better itself if grown upon its own roots, the stocks upon which it is worked being considered incapable of supporting it in vigour.—*J. B.*

Lapageria rosea.—Amongst the very interesting notices of good plants by Mr. Prestoe is the *Lapageria rosea.* Knowing that this lovely plant is becoming a general favourite, and having grown, flowered, and exhibited one, I thought it might be interesting to some of the numerous readers of this useful Magazine to be informed that this fine plant has seeded in this country. I succeeded in raising a few pods of seed in 1853, which remained on the plant *all winter*, and ripened in the last summer. I immediately sowed a portion of the seeds, which to my joy, have vegetated, and afford me the prospect of securing plants. The seeds are of a globular form, and semi-transparent.—*Amicus, Rosemont Gardens, near Liverpool.*

The Crocus.—There are curious phenomena exhibited in flowers, by the expansion and contraction of their parts of fructification, yielding protection from wind and rain, and the dews of the night. The Crocus is constantly influenced by atmospheric changes, and may also be acted upon in a similar manner by artificial means. The following results, among others, arose out of experiments to which the Yellow Crocus was submitted, in the spring of last year. The flowers, having been gathered at night, when their corollas were perfectly closed, were placed at the distance of nearly a yard from two lighted candles, and in a temperature of 50 degrees of Fahrenheit's thermometer. In this situation and warmth they remained two hours, but their petals remained nearly closed. Other flowers were gathered at the same time, and being entirely excluded from light, were submitted to a warmth of 95 degrees; the temperature being very gradually raised from 65. Their continuance during two hours in this situation occasioned but very little change in them. Others were also gathered, and placed between two lighted candles, at about four inches from each, and in a temperature of 70 to 75 degrees. These flowers, in rather less than an hour, were as fully expanded as in the mid-day sun.

FLORAL OPERATIONS FOR MAY.

The pits and greenhouse now offer the parterre their winter-stored plants, which are already commencing their growth, and are eager to breathe the pure air. Caution must, however, be exercised in being prepared for *occasional frosts*, with some *protection* at night in case of need. If your plans are not yet fully arranged as to bedding out, etc., lose no time; particular attention should be paid in contrasting the colours, to give a good effect. A flower-garden may be richly furnished with plants, but be very ineffective if the colours are badly arranged. For producing a brilliant effect in masses, reject particoloured flowers; only use pure and decided colours, such as scarlet, pure white, deep purple, bright yellow, etc.; those which are in close affinity kill each other. Take care not to mix plants which are of *doubtful duration*, when in bloom, with those of a more *permanent character*, remembering always that the beauty of a formal flower-garden depends upon its being in all its details a perfect work of art, in which no blemish should occur. There must be high keeping, symmetry, judicious arrangement of colours (traceable to fixed principles), or it will not form a satisfactory whole. This should be particularly attended to. Many persons plant their stock so *thinly*, that their beds are not covered till late in the season; we advise *thick planting*, both for speedy and permanent effect.

When annuals are required for late flowering, they may yet be sown; and hardy annuals that have come up too numerously should be thinned out, so as to retain but enough to be vigorous. Tender annuals, raised in pots or frames, should be taken, with as much soil to the roots as possible, and *after the middle* of the month be planted out. After all planting is done, the next operations will be training and pegging down the plants; this is a most important process towards having well-furnished beds. Climbing plants will now require training from time to time, according to their growth.

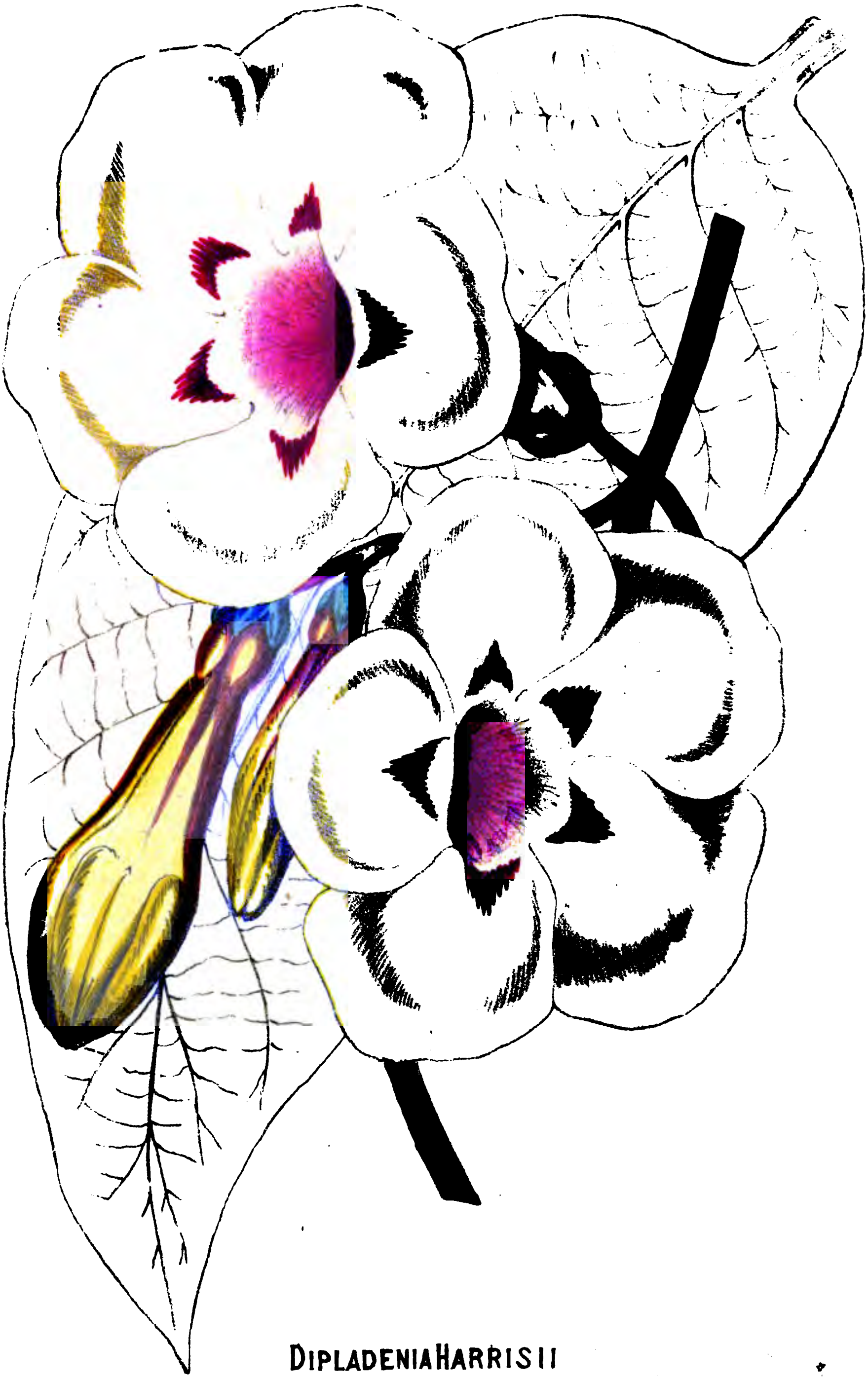
FLORISTS' FLOWERS.—Among these we may class the *Antirrhinum;* many of the kinds now in cultivation are exceedingly pretty, and deserve to be grown. Now is the best time to plant them out. *Carnations* and *Picotees* are by this time in their blooming pots; and as they advance in growth, attention will be necessary to stick and tie them up neatly. Stir up the surface-soil of the pots, and add a dressing of mixed loam and well-decayed dung. *Cinerarias.*—As these go out of bloom cut down the stems, which will induce an abundance of shoots for increase, and turn them out into the open ground, where they are partly shaded. *Dahlias.*—The *last week* in the month is as early as it is safe to commence planting out. The young plants will be greatly strengthened by repotting them into larger pots, giving all the favourable air possible, in order to have them hardy when turned out. *Fuchsias.*—Repot and trim all the plants required for specimens; encourage their growth by frequently syringing them over head. *Pansies.*—Cuttings put in last month may now be planted in a shady bed, for summer blooming. A good watering in dry weather will be necessary. Such as are grown in pots, for show, require particular attention, and by thinning out the side shoots, much finer blooms may be had. *Pinks.*—As the blooming stems advance they will require thinning out. The more robust and very double kinds should have two or three stems left. *Ranunculuses.*—If dry weather continues, water must be liberally supplied; apply it between the roots and not over the foliage, and use rain-water if possible, preferring evening for the operation. *Tulips.*—The top cloth should at once be got on, and never let the sun reach the flowers after they show colour, but give all the air possible.

FORCING FRAME.—Continue to strike cuttings of stove and greenhouse plants, and pot off such as are struck. Plants intended to be flowering specimens for the greenhouse, such as *Achimenes, Gloxinias, Gesnerias,* etc., should be grown here, and brought forward as rapidly as practicable. What are termed greenhouse annuals, as *Balsams, Cockscombs, Salpiglossis, Rhodanthe, Thunbergias,* etc., should be got on quickly. A strong stimulating soil, copious waterings, and ample pot-room, together with bottom heat, are inseparable necessaries to their successful cultivation.

GREENHOUSE, ETC.—A free ventilation is of importance, and by closing with a humid atmosphere early in the evening, a vigorous growth will be best promoted. Give liberal shifts to such plants as now require it before the roots become matted; much injury is often done by deferring until a general shifting. Camellias, such as have formed their flower-buds, should be placed in a sheltered and shady situation out of doors. Ericas should have the ends of their shoots pinched off, to render them bushy and spreading. Climbing plants should be neatly tied as they advance in growth, and abundance of flowers will be the result. Shrubby plants of weak growth, and which naturally make *long frail shoots,* are much improved by bending down the branches, and fixing them to a wire attached to the rim of the pot; in this manner the nakedness of the plant as its base is hidden, and the check imposed on the ascent of sap will induce an increased supply of shoots. Azaleas, when done blooming, *promote their growth.*

Pelargoniums.—Never allow the plants to flag, or the bottom leaves will turn yellow, and the plants then become naked. Put cow, horse, and sheep-dung in equal parts, with a sprinkling of quick-lime, into a tub, and to one peck of these add five gallons of rain or other soft water. When taking it for use, draw it off clear, and give the plants a watering twice a week. Give air freely, shut up early, and syringe the plants overhead three times a week, till the flowers expand. Fumigate to keep down green fly.

WATERING.—See the *entire ball* is made moist. A few holes made by means of an iron pin down through the ball will admit water into the interior.



DIPLADENIA HARRISII

The Floricultural Cabinet.

JUNE, 1855.

ILLUSTRATION.

DIPLADENIA HARRISII.

This exceedingly handsome flowering plant is a native of Trinidad, a West India island, where it was recently discovered by Mr. Purdie, the curator of the Botanic Garden in that island, growing on the banks of the Caroni. Mr. Purdie, who was previously in the Royal Gardens at Kew, sent plants of it there, and in describing it stated, "this fine plant is not surpassed by any one of its congeners, whether we consider the size, beauty, and *fragrance* of its flowers of metallic lustre, or its entire habit." It is a shrubby, climbing, branching plant, flourishing admirably in a stove, or warm conservatory, being *exceedingly ornamental;* each leaf is from ten to fifteen inches long. The flowers are produced in *terminal* as well as *lateral* racemes, each containing from eight to ten of its noble blossoms. We saw it in bloom last autumn, at Mr. Veitch's Nursery, Chelsea. It blooms very freely, and highly merits a place in every collection of stove or warm greenhouse plants. The flowers contrast beautifully with those of the other species of *Dipladenia,* as well as *Echites.* The general appearance of the flowers of which are very similar, as *Dipladenia* is derived from διπλος, *duplex* (double), and αδην, *glandula,* referring to the *two* nectarii-glands in each blossom, whilst those of *Echites* have only *one* such gland, from which circumstance a new genus was formed from what had previously been called *Echites.*

The Dipladenias are easy of cultivation, more particularly so when grown in pots, as a valuable correspondent has so well described in the following observations. In our climate, the character of these plants renders the adoption of *pot culture* essentially necessary, in order that the new wood may be *properly matured* in glazed structures, and kept portable, for the greater convenience in their management. They are, notwithstanding, sufficiently hardy to bear with impunity a considerable amount of cold when in a "dormant" state, but to grow this tribe of plants successfully, a comparatively high temperature is decidedly necessary. Much of the success depends upon the marked season of rest, for it is not merely the periodical rest of winter these plants require; they have, like animals, their diurnal repose, therefore night and its accompanying refreshment is as necessary to them as it is to ourselves; for in all Nature the temperature of night falls lower than that of day, therefore at that time the perspiration of plants is stopped, no digestion of food takes place, and instead of decomposing carbonic acid by the extraction of oxygen, they part with carbonic acid, and rob the air of oxygen, thus deteriorating the air at night, but not to the same extent as they purify it during the day; therefore, to meet with the wished-for success, the temperature of night should be kept lower than is usually practised among plant-growers, and a temperature varying from 85 to 90 degrees during the day. When these plants are in "active growth," they also at this season require a very humid atmosphere, or the leaves are soon disfigured by the innumerable punctures of a host of insects, which are certain to attack an "unhealthy plant," and thence spread all over those that may be near. This genus can be propagated in two ways. The first and most successful way, which I have always practised, is by taking the small tubercles of the roots, and potting them in the same way as young plants, taking care to keep the crown of the tubercle just above the soil, and plunging the pots in a moderate hot-bed, covering them with a hand or bell glass till they push; after that period the glass may be removed. The second way of propagation is by taking off, as early in the season as it is possible to procure the young wood of sufficient length, pieces having three or four joints, such being the best. They must be cut quite from *their origin*, so as to retain a small portion of the parent stem at the base of the cutting, or, as it is technically called, "a heel;" these being squared off with a sharp knife, and the lower leaves removed, the cutting is ready to be inserted in the pot, which should be filled to within an inch of the rim with very sandy peat and silver sand mixed thoroughly, filling up the remaining space with pure sand; in this the cuttings are to be placed at a distance of about an inch apart, and when the pot is filled, dip it carefully in a vessel of water till the water is evenly over the surface of the sand; then draw the pot out quickly, and the passage of the water downwards draws the sand so tightly around the cuttings that the air is quite excluded; a point of the utmost importance in all kinds of propagation. Cover them with a bell glass, and plunge the pot to its rim in a steady bottom heat of 80 degrees, taking care to shade them from the strong sun-light, and to supply them moderately with water, till, in three or four weeks, they will have protruded roots sufficient to warrant their removal into separate pots. The treatment through the second stage very closely resembles that of mere cuttings; they should be potted in sandy peat and good decayed leaf-mould, adding a sufficient quantity of silver sand to keep the whole porous. They should at this period be kept in a close frame, at a temperature of 70 to 75 degrees, maintaining about them a close humid atmosphere, with a liberal application of water, and shading the glass to reduce the heat, rather than by the admission of the external air, as the exhaustion caused by the influx of a dry atmosphere would be more than the plants in their present delicate condition could bear. If the first part of the season has been taken advantage of to proceed thus far, the young plants' future progress will be rapid, and by the end of summer they will have thoroughly established themselves, and by a few weeks' exposure to a liberal aëration, will become ripened, and in a fit state for winter. This is perhaps the most trying period in the whole history of the plants; they will require to be kept just cool and dry enough to prevent any attempt at renewed growth, and yet so warm as to be in full vigour, and in a condition to start with energy on the first application of the usual stimulants. The best period for renewing the action will be the middle of January; repot them, and again place them in a brisk heat, about the same as that in which the cuttings were stuck; here they will grow with rapidity, but great care must be taken to prevent the young shoots becoming massed together; for if they are suffered to do so, it will cause a deal of trouble, besides the chance of twisting the shoots, which at this period are very tender. They should, therefore, be looked to every day, letting them ramble where they like till the end of March, when repotting will be again necessary. After this operation, the trellis most suitable for these plants should be placed to them, carefully training the young shoots at equal distances from each other. The trellis I have found most suitable for this tribe of trailers is a "conical-shaped;" it is the best suited for displaying their magnificent flowers. The plants may then be removed to the stove; where bottom heat can again be supplied, with a little more elevated humid atmosphere. About the beginning of June the plants will begin to show bloom, and their fine flowers will amply repay the cultivator for all attention given.

When the plants are in full bloom it will be advisable to remove them into a somewhat cooler temperature, which will prolong their beauty and likewise tend to prepare the plant for winter rest. Some difference appears to exist in the opinion of botanists as regards the limits of this genus, and an allied one, called "*Echites*," has at present defined the species of *Dipladenia* to the following. *D. splendens*, which was introduced in 1841, from the Organ Mountains, and is more generally cultivated than any other member of the genus, on account of its producing such lovely rose-coloured blossoms, very large in size. The second is *D. crassinoda*, introduced from Rio Janeiro in 1842; flowers a brighter rose than *splendens*, but smaller in size. The next is *D. atropurpurea*, from Brazil, in 1842; flowers a dark purple. The fourth is *urophylla*, introduced in 1847 from Brazil, having deep salmon flowers.

The following are called *Echites* by some cultivators, and *Dipladenias* by others: viz. *nobilis*, *suberecta*, *Wagneriana*, *nigricans*, *Rosa-campestris*, *Pellierii* or *flava*, *aucubæfolia melaleuca*, or *picta*, *bicolor*, *peltata*, *spicata*, or *Forsteronia, paniculata, hirsuta, nutans, sinensis, Franciscea,* and *nobilis-grandiflora.* Some of them are of recent introduction, particularly ornamental and beautiful. They all merit a place in every collection, being very distinct, and form handsome plants when coiled round a cylindrical wire trellis, or pillar.

It may be interesting to our readers to know that this genus belongs to the Natural Order *Apocynaceæ,* the genera of which are generally tropical, throwing out a few representatives only, such as *Vinca* and *Apocynum,* in northern countries. They apppear to be most abundant in the hot parts of Asia, and less common in the tropics of America, and very limited in Africa. They are in many cases venomous and very generally to be suspected, although in some cases they are used medicinally, and in others have an eatable fruit. Among the true poisons, *Tanghinia vennimfera* stands foremost; the kernel of the fruit, although not larger than an almond, is sufficient to destroy forty people; and from a species of *Echites* the Mandingoes are said to smear their arrows, as it is the most deadly poison. In general this genus is narcotic, but with considerable acrimony, whence the species are employed, especially their roots, as drastics and epispastics. *Aspidosperma excelsum* is, according to Schomberg, remarkable for its trunk growing from the lower part into tubular projections, forming cavities, which serve the Indians as ready-made planks, and in the construction of their paddles; the trunk appears as if fluted, or rather as if it consisted of a number of slender trees grown together their whole length. The sages of Ceylon having demonstrated, as they say, that Paradise was in that island, and having therefore found it necessary to point out the forbidden fruit of the garden of Eden, assure us that it was borne on a species of this genus, the *Divi Ladner* of their country, and probably *Tabernæmontana dichotoma.* The proof they find of this discovery consists in the beauty of the fruit, said to be tempting in the fragrance of the flower, and in its still bearing the marks of the teeth of Eve. Till the offence was committed which brought misery on man, we are told that the fruit was delicious; but from that time forward it became poisonous, as it now remains.

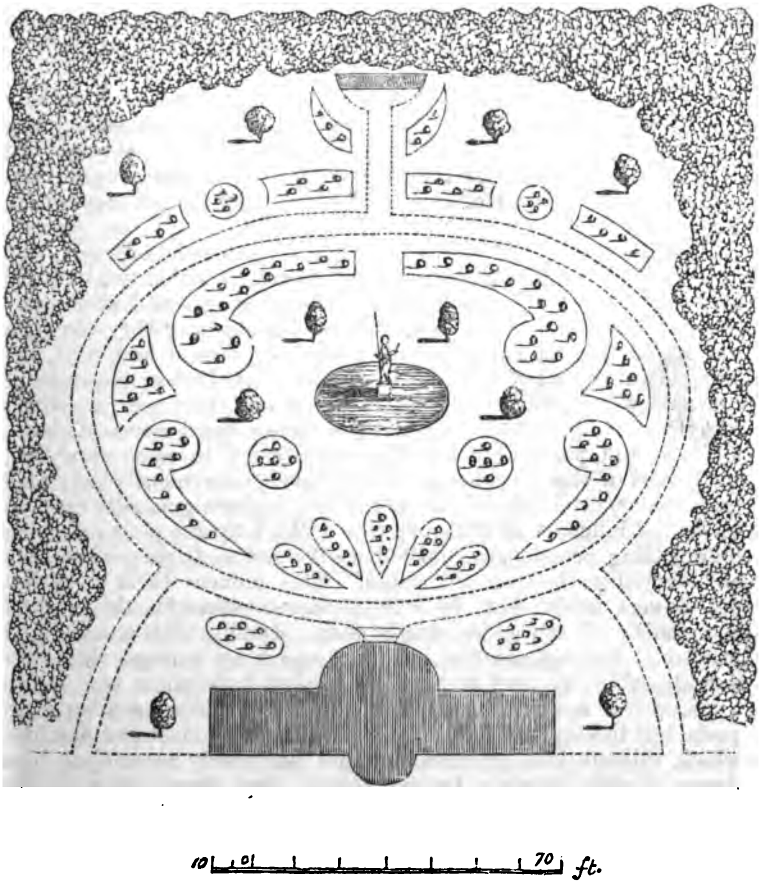
REMARKS ON THE CLIANTHUS PUNICEUS.

BY MR. CHARLES HARRIS, WITNEY, OXON.

FLOWERS are said to be the alphabet of angels, whereby they write on fields and hills mysterious truths, fitting for mortals to learn—truths that speak to the inmost heart of the PERVADING SPIRIT that governs all things.

Being myself an ardent admirer of those favourites of nature, delighting in their presence at all seasons, and having at the present time (April) a fine specimen of the above-named plant—covered with its rich clusters of pendent, crimson blossoms—exciting the admiration of all beholders, I am induced, by its striking appearance, to recommend it for window adornment. When it is supported to the height of three or four feet, and then allowed to *fall*, nothing can surpass the beauty of its *drooping shoots*, adorned with green and graceful foliage, imparting a freshness to the imagination during the winter months, and by its comparatively easy culture amply repaying for their attention all who may possess it, and causing them to admit that it is justly entitled to the name given by its discoverer, Solander—"FLOWER OF GLORY."

DESIGN FOR A FLOWER GARDEN. BY T. RUTGER, ESQ.



THE accompanying design is intended for the frontage garden of a conservatory. It will be perceived that the clumps are meant to be on grass, and that there is a seat intended to be placed at the further end, or where an alcove may be erected.

REMARKS ON THE CASSIA CORYMBOSA.

BY MR. JAMES MAYOR, OF SUMMERFIELD HOUSE, BOWDON, NEAR MANCHESTER.

THIS is amongst the best of our autumn-flowering greenhouse plants, for, in addition to its being a free bloomer, its colour differs from the majority of those that flower about the same season, therefore affording a strong and beautiful contrast, and contributing largely to the harmony of the whole.

Although autumn or early winter is the time at which it usually flowers, yet it may be had in bloom before and after the time specified, if such be required, by facilitating and *vice versa*. It is of long duration, and the flowers retain until the last (under proper treatment) that brightness of colour by which they are so particularly characterised.

PROPAGATION.—The method that we adopt is as follows:—In the month of March we cut down the old plants to within two or three eyes of the last year's wood, at which time also the said shoots are cut into lengths, varying from two to four inches; they are then put round the edge of a pot, in a mixture of sand and peat, and plunged into a bed of slight bottom heat, shaded when required, of course. When sufficiently rooted for removal, they are put singly into five-inch pots, the compost used being equal parts of loam, leaf-soil, and peat; they are then transferred to some close and shady part of the greenhouse or other such convenient place, until they become established in the pot, when they are gradually exposed to the full influence of the sun's rays. We keep the plants growing by repotting occasionally, until about the end of August, when they are allowed to become pot sound. This induces them to throw out flowers freely; but, by way of compensation for this sort of curtailment of space, we supply them liberally with weak liquid manure. Throughout the growing season we syringe them frequently, which we find to be of the utmost importance, not only as a preventive against the appearance of red spider or other such pests, but to keep the foliage and plant free from dust and the like, which, without this precaution, would necessarily accumulate to a degree highly injurious to the plant. One grand point in the culture of this plant, we find, is having the wood strong and well ripened previous to starting the old plants into growth. This we know is applicable, to a certain extent, in the case of most plants, but particularly so in this.

When the plants are cut down a drier course of treatment is pursued, until the plants start fairly into growth, at which time every means must be used to facilitate the production of luxuriant shoots, which will ultimately produce proportionably fine flowers. Under all the different stages of development they are kept contiguous to the glass, for the simple reason of preventing them from becoming "drawn," or, according to our common style of phraseology, "leggy." Plenty of room is allowed, as they have the greatest antipathy to being crowded.

PROPAGATION OF ROSES BY CUTTINGS.

BY MR. MARTIN, GARDENER TO MISS M. A. STONE, MAYFIELD, SUSSEX.

All rose-growers agree that it is advantageous to have plants on their own roots (as it is usually termed), but with some kinds difficulties have arisen in obtaining such plants, as well as in attempts to propagate them. I have been very successful in raising numerous kinds by cuttings, and therefore forward the process adopted, that others may derive similar advantages.

Early in October I take off about five inches of the tops of the shoots, which have good plump buds, cutting each *close under a bud*, and insert them in equal parts of sand, loam, and leaf-mould, in pots; they are placed under a wall where they can be kept from sun, and be just moist. Towards the end of November they are removed into a frame, where the temperature is about fifty degrees, and the buds soon begin to push forth.

They now require to have all the air possible in mild weather, only protecting them from *frosty air*. They soon push roots, and when the new shoots are about an inch and a half long I uniformly find the cuttings are well rooted; I then pot them off singly, or as may be required, plant them out in the open ground at the proper period.

Plants raised at *this time* (October) will make nice specimens the following summer, and bloom most satisfactorily.

The like results in striking cuttings may be accomplished by taking off cuttings in April; but, of course, such plants do not bloom the following summer, but are excellent for the next year.

I find all the *Bourbon* Roses strike very readily; the *Noisettes* also, and many of the *Perpetuals*. In order to make the plants *bushy*, it is necessary to stop the leading shoots, to induce them to push lateral ones. I now (December 26th) have some which were put in (cuttings) on the 13th of October, and each is pushing forth as strong side shoots as old-established plants.

THE PLEASURES OF FLORICULTURE;

WITH REMARKS ON DIVIDING THE FAMILIES OF PLANTS, AND CREATING NEW GENERA FROM THEM.

BY J., OF JERSEY.

THE love of flowers, and of their culture, has been very great in me from my childhood. It was imparted to me by my good Aunt Mary, who was considered as having always the prettiest, most healthy, and best-looking flowers in Jersey; except, perhaps, those rare sorts which were then cultivated in the few greenhouses which there were at that time in the island. Her garden was, from early spring until late in the autumn, replete with the enlivening blossoms of the beautiful objects of her care. To the pleasing occupation of out-of-door culture she added another, in which she took much pleasure, and which is now called *Window-gardening*. In this she certainly excelled; her windows looked as if there had been spread over them a screen of various tints of cheerful green, over which some fairy hand had strewed fragrant blossoms of the fairest hues in the utmost profusion, which, whilst impervious to the ardent ray of the mid-day sun, readily admitted every zephyr, fraught with perfume, into the cool interior of the rooms. The plants which produced these pleasing effects were then called *Geraniums*.

I was removed for a time from my pleasant home for the purposes of education, but I carried with me and retained the love of floriculture, which had been so early implanted in me. I continued to look on my old friends, the *Geraniums*, with undiminished, perhaps increased pleasure; and on my return home some years afterwards, having a little time on my hands, one of my principal sources of recreation was the growth of flowers. A little success in this had the effect of putting me in communication with regular amateur florists, from whose experience I derived most important benefit; but, when talking one day with one of them about some of my favourite *Geraniums*, I was mortified by his telling me that they were no longer called by that name, and had been replaced by that of *Pelargonium*, but he could not tell me for what reason. Another friend, more learned and versed in the recent changes, informed me that the name of *Geranium* was preserved, but that it had been divided into two genera, *Geranium* and *Pelargonium*, because there existed differences in character, easy to be distinguished. He had the kindness to define them for me as follows:—

The *Geranium* (Crane's bill), alternate leaves, regular flowers, with ten prolific stamens.

The *Pelargonium* (Stork's bill), having leaves opposite, irregular flowers, seven prolific stamens, and the upper division of the calyx a little larger than the others.

I was forced to agree to the propriety of this arrangement, but knowledge, ever on the march, was not satisfied with so imperfect a classification, and I was soon called upon to adopt a *new name*, which had been given to a genus formed out of the two others; this was—

The *Erodium* (Heron's bill), having for characters alternate leaves, flowers regular, and five fertile stamens.

Thus were formed, from the original *Geranium*, two additional genera—*Pelargonium* and *Erodium*.

Years have passed away, during which my time has been too much occupied by other matters to permit me to take much thought about floral matters, but now being, through ill health, unable to give so much time to business, I am glad to devote some of my leisure hours to a pursuit which afforded me so much gratification in past days; but I find things have much altered. There has been a stupendous improvement in the culture, and an infinite number of superb hybrids has been produced; but I find that the names have been changed, and am at a loss to distinguish by which of them I should call my plants.

Thus, *Erodium* is seldom heard of now; the only instance in which I have met with it lately being in Messrs. Harrison & Co.'s "Catalogue of Herbaceous and Alpine Plants," *Erodium Reichardii*. As to *Geranium*, when I read of it in the *Cabinet*, the word is followed by *so called*, in a parenthesis; and reading in the *Times*, of 11th May, the report of the Botanic Society's Flower Show in the Regent's Park, on the 9th, I find it stated that "the *Geraniums* of Mr. Turner, of Slough, were of the best;" but I look for them in vain in the list of prizes—the two awarded to Mr. Turner are for *Pelargoniums*.

In order to remove my uncertainty, with respect to the names, I have thought I might take the liberty, as a subscriber to the *Cabinet* from the commencement, upwards of twenty-two years ago, of applying to you for information; and therefore request you, or some of your correspondents, will have the kindness to tell me what is a *Geranium*, and what is a *Pelargonium*. Also, if the name of the CLASS is changed, and if so for what reason—which, in that case, I hope is a good one; for otherwise I think that *Geranium* is much the prettier name, and should have been retained.

THE SEASONAL GROWTH OF PLANTS.

BY A CRITICAL OBSERVER.

THAT the growth of plants is affected chiefly by the temperature of the climate of which they are natives is well known. On the confines of the frigid zone, and over all the temperate, and part of the torrid zones, plants are regularly seasonal; that is, they grow, blossom, and yield seeds in one season, and rest in the other. And even in the hottest parts of the torrid zone, although there is nothing like summer and winter, yet there are changes of weather which affect plants in a similar manner. There is the dry season, especially towards the end of it, in which a great majority of plants cease to grow, and even shed their leaves; and many wholly disappear, withdrawing themselves entirely from the light and heat of the sun, and remain in a torpid state till the dry heat is over. This is followed by the rainy season, which recovers all vegetation; the foliage and flowers of bulbs and tubers spring forth from their dormitories, the seeds of herbs are awakened into life, and the shrubs and trees all put on a new livery.

In latitudes where the regular seasons of summer and winter are constantly experienced, the development of plants in the one, and their torpidity in the other, are common occurrences, and every day before our eyes. And although it is perfectly obvious that the changes of temperature are the principal and ostensible causes of vigorous action and rest alternately, there are instances of particular plants which, though they obey the revivifying influence of the vernal season, stop long before that degree of heat which first excited them to action ceases in the autumn. Of this fact the common ***ash tree*** is an instance: although it is one of the latest in coming into leaf in the spring, it is one whose summer growth is quickly over, rarely extending its shoots after the month of July; and sometimes its growth ceases soon after Midsummer.

This circumstance plainly shows us that heat alone is not the agent which can cause vegetable development to be progressive, and that it is not the southern declination of the sun nor the diminution of his power which arrests the growth of some plants, but rather that there is some constitutional law which regulates the growth by impulses; certain portions of the organization being developable, and when this is complete a pause takes place for a longer or a shorter time.

Most of the plants in the temperate zones make annual pauses. Their visible growth and the annual divisions of their woody structure show this very evidently. Some few there are which make a double pause; a short one at Midsummer, and a long one during winter. The oak always, and the horse-chestnut frequently, present this Midsummer rest, succeeded by what is called the Midsummer shoot.

In the equatorial regions the pauses or cessations of growth are caused, as already observed, by the alternations of the dry and rainy seasons; and although in constantly humid or marshy situations there is no appreciable difference in the verdure, yet, on examining the ligneous structure of the trunks, we plainly see that it is formed by pulsations, as it were; instance the mahogany, satin-wood, and other tropical kinds of wood used in manufactures. But in respect of these just mentioned, we are not certain that the concentric rings of wood, on a transverse section of the trunk, are annual layers, because, for aught we know to the contrary, they may be deposited at twice or even thrice in the course of twelve months in those exuberant climates. In this temperate country it has been repeatedly proved that there is a deposit of new wood in every year of the tree's life; but of tropical trees we have as yet had no positive proof. Travellers in those countries cannot have leisure to prove this matter; and we have heard of no resident who has attended to this particular.

A question occurs—Is there any such a thing in any climate as an ever-growing tree? Among herbs and suffruticose plants, there are perhaps many which, being placed in constantly uniform circumstances of heat and moisture, are ever growing, more especially those which emit roots from their lengthening stems, and which at the same time produce both viviparous and oviparous progeny; that is, both runners and seeds. All that are called creeping plants are ever extending themselves, if sufficient heat and moisture be present; but this process is not a constantly inceasing growth of the original stock, but an increase of numbers or bulk of the offset progeny. Such instances are frequent among the grasses, whether purely herbaceous, like the Sheep's Fescue (*Festuca ovina*), or woody, like its gigantic congener, the Bamboo. This latter is a stoling plant, and in its native country appears in an ever-growing state; its aggregated stems are ever rising in successive gradations, from the green succulent shoot, peeping through the soil to-day, up in various heights to nearly fourscore feet.

But if there be any plant which may be truly called ever-growing, we will most likely find it among the Palms. The growth of these majestic trees really appears to gain altitude by an incessant progression, without manifest pause or periodical interruption; and this appears much more evident from examination of the internal structure of the stem, than from constant observation of the external development. Frond after frond rise from the centre of the bole, and are consecutively expanded; and though we may reasonably fancy that the growth may be more rapid during the monsoons, there is certainly no sign of anything like grades to indicate cessations of growth or interceptions of the structure of the wood, the whole being a uniform combination of longitudinal fibres imbedded in coarse cellular membrane, without divisions either horizontally or vertically.

That this may be the case with some of these plants is probable, not only from the uniformly exciting climate of which they are natives, but from the rigid character of their exterior, the bark being harsh, and the foliage, even in its young and most tender state, of the toughest texture; hence not easily affected by changes of weather. And as the fruit of several of them is, like the fronds, successively (not annually) produced, there seems to be less necessity for periodical pauses in their growth than in the case of trees otherwise constituted.

How different is it with the tuberous and bulbous stemmed plants of tropical and other countries. Soon as the monsoons or autumnal rains set in, they come forth in great vigour, bloom in great beauty, but quickly retire from the increasing heat, leaving their seed to be ripened and shed in the dry air, while their vital principle reposes unseen in the bosom of the new bulb or tuber which has been formed or enlarged simultaneously with the seed, and in which it remains secure till the arid heat is over. This is exemplified in the Hæmanthus of Africa, the Tuberose of India, the Potato of South America, and the Snowdrop of Europe. Were these plants unprovided with those substantial tuberous or bulbous parts, they must inevitably perish during the great heats to which their native lands are subject.

But to return nearer home. We observe in the temperate climate of Europe, and where summer and winter follow each other uninterruptedly, the herbs of the field, and the deciduous shrubs of the copse and wood, are active and verdant in the first, and stationary and defoliated in the last. Some of them continue to grow and retain their foliage till destroyed by frost; others, as cultivated bulbs and tubers, the ash already mentioned, and many others, stop as soon as their paroxysm of growth is over. With respect to those which are arrested by frost (and chiefly exotics), their stopping is easily accounted for—namely, a coagulation of their juices, which stays the current, and consequently checks all distension of the membranes and vessels. But regarding those trees and shrubs which cease growing while the weather is genial, and, as often happens, both moist and warm, we can come to no other conclusion concerning them but to presume that, after a winter's rest, there is a certain division of the system prepared and destined to be developed, and, when this is completed, the season of rest recommences.

This is very evident in bulbs and tubers, whether cultivated in the flower or kitchen garden: a Hyacinth ceases growth before Midsummer, and a Spanish onion very soon after; nor can either of these be prompted again into action until they have had a period of rest. In these cases it is very clear that atmospheric heat, abstractedly considered, is not the sole agent in vegetable development, otherwise the growth, both as to vigour and duration, would always be equal to the intensity of the inciting cause; and, according to this rule, the development at Midsummer, when the sun's heat is usually greatest, should be more luxuriant than at any other time of the year. This, however, we know is not the fact; and therefore we can only rationally attribute the stagnation of growth at any period of the warmest season to some constitutional peculiarity of the plants respectively.

In regard to annual, biennial, and perennial herbs, their development is easily comprehended. They grow up, flower, ripen their seeds, and die entirely in the first and second years, if annuals or biennials, or die down to the ground, if perennials. The annual growth of a tree or shrub having a permanent head is very different. These have a certain number of shoots, leaves, flowers, and fruit to mature, and moreover a new layer of wood and a new liber to distend and maintain. This distension is affected by the rarification of the sap stored in the cellular and vascular membranes inducted in the last or other bygone years, and this rarefaction and expansion is supplied by water and other elemental food absorbed by the roots from the earth, and by the stomata or pores of the bark and foliage from the air.

Now, if there be not a sufficient supply of food collected from these sources for the amplification of the shoots, leaves, flowers, fruit, and new layers of wood and bark, the full expansion of the parts cannot be complete, and of course the growth will cease early in the summer, or the expansion of the different members will be both slow and diminutive. But, on the other hand, if the plant be healthy, and can supply itself with a full quantum of food, the expansion of every part will be more ample, and the growth longer continued. But even under those favouring circumstances it does not appear that the growth will be continued longer than the period necessary for completing the previously prepared portion of the organization, unless art interferes to derange the process. For instance, if an annual plant be cut over early in the season, and before either flowers or fruit are produced, other shoots will be produced to complete the purpose of the plant; and if these be again cut off, this mutilated being, whose period of existence is predestined by nature to the space of only a few months, may be kept growing for twelve or more: this happens with many of the grasses. So if a shrub, a Rose, or a Rose acacia, be pruned back as soon as they have yielded their first flowers, they will shoot and flower again in the autumn. The like takes place on the development of trees, and fruit trees particularly; if their first shoots or flower-buds be destroyed, others will subsequently come forth to make up the loss, and the seasonal growth be greatly prolonged.

From all these observations, and from the instances adduced, we are led to infer that the great majority of plants are more or less seasonal, that they have periodical states of action and repose; and in many cases we have reason to suppose that the completion of the first depends on the perfection of the second.

It is evident that plants, like animals, require rest, as proved by the facts observable as relative to them. That they have rest from this change of seasons is manifest; and that they take rest when their paroxysm of growth is over is equally obvious. Many of them even appear to sleep; for as soon as the light of the sun is withdrawn, their winged leaves drop from their erect or horizontal position, and hang listlessly till the next dawn of day. Thus it would seem that plants require to be restored after the excitement of the summer. But we have further to inquire whether this rest be necessary, and whether plants be invigorated thereby. That it is necessary is obvious, because it is an incident in the course of nature; and that they are recruited in their vegetative powers may be believed, by comparing the vernal with the autumn growth; their winter rest is only a kind of torpidity, in which their vital action is not wholly re-pressed. There is always some visible motion, however slow, particularly in the swelling of the buds, the emission of root-fibres, and the occasional oozing of sap from a wound made on the south side of a tree, even in the depth of winter. And as the interior of a stem is always warmer than the surrounding air, there may be some kind of elaborating or assimilating process going on, which may have a chemical effect in changing the crude sap imbibed in the summer into a richer and more excitable fluid, better fitted for expansive action in the spring.

Practical experience has assured us that a tree which has been debilitated by removal, drought, or from other casualty, and consequently destitute of the necessary share of this matured sap, shoots feebly, and produces few or no perfect fruit; and in the business of forcing fruit trees, we can very frequently see that if one has been exhausted either by very early or repeated forcing, or from bearing a great crop of fruit, it is less able to be forced early, or to bear a heavy crop in the following year. This consequence is often visible in the open air, where we rarely see two heavy crops following each other.

It is of the utmost importance to the fruit-grower to keep his trees in that thrifty condition that they shall never become debilitated by over-bearing or for want of due nourishment, and particularly that they be always charged with a full supply of elaborated sap, which is indicated by the short-jointed, full-eyed, and brown hardy colour of the bark of the bearing wood; and that to mature this still more, a thorough check and complete stagnation of the fluids must be given, to prepare the tree by a season of rest for future exertion. On this principle the practice of *wintering* trees is founded, many believing that a good tight frost for a week or two is really of great good service to fruit trees which are occasionally forced.

Checking luxuriance, either by a very low or a very high temperature, causes prolificacy. But this is a violence which should be seldom had recourse to; for though it may cause the exhibition of the fructiferous, it will debilitate the growing principle.

On the whole, it may be averred that in the cultivation of every seasonal plant, its climatal and constitutional propensities (if we may use the word) should be regarded.

CULTURE OF LISIANTHUS RUSSELLIANUS.

BY MR. THOMAS SHAW, GARDENER, HOPE LODGE, EDMONTON, MIDDLESEX.

A FEW years ago well-managed specimens of this most beautiful flowering plant were exhibited at the principal London shows, and the lovely *tulip-shaped* large blossoms, borne in profusion, were the admiration of every beholder.

It was soon apparent that, to grow the plant well, it required a little *peculiarity*, which if not strictly practised, a failure would be the result. Some celebrated plant exhibitors not managing it well, and producing only miserable specimens, discouraged many from making attempts afterwards. From that period to the present time I have grown and bloomed numerous specimens every year, most successfully. The plants were managed as follows; and all who pursue the directions hereafter detailed will not fail to realize equally satisfactory results.

The best time to sow the seed of this most splendid plant is in March, and as the seed is amongst the smallest of nature's productions, it requires additional care in sowing; therefore to sow it in the usual way, upon *a loose soil*, the first watering carries the seed along with it, and hence the failure.

Prepare the following compost: half loam, the other made up with leaf, peat, or bog mould, with a little sand; place plenty of drainings in the bottom of a forty-eight or thirty-two pot, fill it with the compost very tight, and on the top place half an inch of sand; damp the sand with water, to harden the surface; sow the seed, and sprinkle a very little dry sand on the top; place a propagating glass over the pot, or a piece of glass will do; place your pot into a heat of seventy or eighty degrees, with a pan under it, for the future watering—at no time water on the top; the pan ought never to be allowed to get dry. The seedlings will appear in three weeks or more; when about three weeks up, plant them singly in a sixty-sized pot in the above compost, with plenty of drainings in the bottom. Place them again in the back of your cucumber pit or frame; after this you cannot give them too much water, over head, and in the pans; by the autumn, if they have been kept in a good growing heat, they will be fine little bushy plants; top them at every joint. In September shift them into large sixties, merely to keep their roots in a more intermediate state for the winter; after this all top watering must cease, and a pan placed under each pot to receive the watering; and as the winter approaches not a drop of water must be allowed to fall on the plant. The drier the top mould next the leaves and stem get, the more certain of preserving your plant. The best place I have found is a one-light pit, heated with a lining of dung from fifty to sixty degrees; air given front and back, that no damp can fix on the bars and drop on the plants; the second best place is the coldest part of the stove, very near the glass; I have also kept them well in the warmest part of the greenhouse; in all cases, just water sufficient to keep the plants from flagging. If the winter is dry, water once a fortnight; if damp weather, once a month or so. Towards the end of February place them in a cucumber pit or frame, in a heat of from seventy to seventy-five degrees, and when they begin a fresh growth shift them into as large pots as convenient, remembering the larger the pot, the finer your specimen. My largest plant had 600 blossoms on it, and was grown in a number eight-sized pot; but many others had from 300 to 400. As the spring advances, it is almost impossible to give them too much heat and moisture; they are very fond of liquid manure.

It is useless to grow a fine plant in any place approaching to *dry heat*, nor *less* than seventy to eighty degrees. I have grown them five inches in seven days.

In removing out of the pits, great care must be taken in not allowing the sun to shine on them for some days, as the change from a damp close heat to a dry house will be too much for them. By the above treatment they will come into flower about the middle of July, and keep blooming from two to three months, forming a most splendid ornament for drawing-room, conservatory, or greenhouse.

THE MANAGEMENT OF BLETIA TANKERVILLIÆ AND B. GRANDIFLORA.

BY MR. JAMES JONES, OF PEVERIL HOUSE GARDENS, ANGLESEA.

As ornamental stove plants the *Bletias* stand prominent, and the fact that one of the above species or other beautiful ones are to be found in almost every stove is an acknowledgment of their merits. Notwithstanding the many hundreds of showy hybrids and other plants which are annually introduced into this country, the *Bletias* have outlived many gay productions; and will continue to be admired when thousands of new introductions, the fugitive beauties of which flutter only for the day, have speedily passed away and scarcely left a trace of their existence behind. The *Bletia Tankervilliæ* has been cultivated in this country since 1776, and was flowered for the first time in England at Apperly Bridge, near Bradford, in Yorkshire, to which place it was imported from China, by Dr. Fothergill. It is cultivated in almost all stove collections, although it but seldom attains that magnitude and beauty which, under good management, it is so fully capable of displaying. With me this old plant is a favourite, a circumstance which will perhaps best account for the degree of success which has attended its cultivation. The plan by which it has been found to arrive at a very high degree of perfection and beauty is the following. About the middle of April the flowers begin to decay; the roots of the large plants are divided into three or four bulbs, these are then potted into pots suitable to contain the roots, with a small portion of earth; in this they remain until the roots have become sufficiently numerous to again require shifting into larger pots. This process is continued from time to time as the plants require it, the latter being generally made to bloom in sizes varying from nine to fourteen inches in diameter. The compost in which they succeed the best is a mixture of about two-thirds turfy peat earth, containing a large quantity of strong heath roots, with one-third part of loam, sand, and decayed manure. In compost thus prepared, they attained, during the past season, very great luxuriance. One plant now in bloom has produced ten flower-stems, some being upwards of four feet in height, and each having numerous flowers.

The roots of the *Bletia*, when in a growing state, require to be kept very moist; they are, however, exceedingly impatient of over-watering, and are never found to thrive when the earth in the pot is kept so wet as to cause them to rot and decay; this is a very common error, to obviate which it requires the greatest care and attention in watering.

NOTES ON NEW AND SELECT PLANTS.

48. Begonia magnifica. Nat. Ord. *Begoniaceæ*. Discovered by M. Linden, of Brussels, in the cold and moist parts of Cundinamarca, at an elevation of nearly 8000 feet above the level of the sea. It forms a bushy plant; the leaves are moderately thick, the upper side is velvety and finely veined with silvery white, reflecting a metallic lustre. The flowers are of a brilliant scarlet, two inches in diameter, produced in a peduncle, six or eight in each. This species which will shortly be sent out by Mr. Linden will no doubt prove the finest of its class. (*Lind. Cat. Plant. Exot.* 2.)

49. Calathea pardina. Nat. Ord. *Canneæ*.—This is a splendid species, doubly beautiful by the magnificence of its leaves and the beauty of its flowers, qualities rarely found united in the same individual species. The leaves are large, with long footstalks, the edges lively green, along which are disposed two rows of large regular spots of a violet-black. The flowers are of a pretty citron-yellow, very large for the genus, forming a spike. It was discovered and introduced by M. Schlim, who found it in the humid and shadowy forests which border the Rio Magdalena, in the province of New Granada. (*Lind. Cat. Plant. Exot.* 2.)

50. Calathea metallica. Nat. Ord. *Canneæ*.—Another species not less distinguished than the preceding for the richness of its leaves, the surface of which is of a dark green, reflecting a golden, metallic hue; along each side of the midrib is a dark shade similar to that in *C. Warscewiczii*. The flowers are small, violet, forming a cylindrical spike, the top of which is crowned with sterile bracts. It was discovered in the pestilential forests of Choco, by M. J. Triana. (*Lind. Cat. Plant. Exot.* 2.)

51. Didymopanax splendidum. Nat. Ord. *Araliaceæ*.—It inhabits the hot regions of New Granada, and consequently will flourish in a temperature lower than 50 degrees. It is one of the handsomest trees of its native country, where it acquires a height of from thirty to fifty feet. It is there known under the name of

Cajetero. The leaves, borne on long petioles of an ebony black, are four feet in diameter, the upper surface of which is of a clear green, and the under part of a silvery white. (*Lind. Cat. Plant. Exot.* 3.)

52. NANDIROLA LANATA. Nat. Ord. *Gesneriaceæ.*—This is remarkable by its reflexed leaves one upon another, forming a sort of arch, above which the flowers are elevated; they are of a light lilac, interiorly shaded with violet, very delicate in texture, and elegant in form. The leaves and petioles are covered with a woolly down, very thick, and pure white. The introduction of this charming Mexican plant is due to M. Ghiesbreght, who discovered it in the fissures of rocks at Pantepec. (*Lind. Cat. Plant. Exot.* 3.)

53. ORTOSIPHON SPICATUS. Nat. Ord. *Labiateæ.*—A pretty greenhouse plant with large white flowers, forming a quadrangular spike, six to eight inches long. The leaves are acuminate, oval, and possess an extremely agreeable scent. The floral bracts are green shading into violet, and the stalks four-sided. It is a native of Ocana. (*Lind. Cat. Plant. Exot.* 4.)

54. TYDAEA AMABILIS. (Achimenes). Nat. Ord. *Gesneriaceæ.*—An admirable Gesneraceous plant, with handsome marbled leaves and charming flowers of delicate rose, deeper towards the limb; the throat is streaked with white and carmine-rose. It is a *decidedly beautiful* stove plant. It was introduced by M. Triana, who discovered it in the province of Popayan. (*Lind. Cat. Plant. Exot.* 4.)

55. TYDAEA ELEGANS. (Achimenes). Nat. Ord. *Gesneriaceæ.*—Another handsome species, discovered by the same botanist in New Granada. It differs from the preceding species in having flowers of a *brilliant scarlet.* (*Lind. Cat. Plant. Exot.* 4.)

56. BOMAREA PUDIBUNDA. An elegant climbing plant, which is perfectly hardy, with rosy carmine flowers, borne in terminal branching umbels; the perianth is bright green, tipped with black. Discovered by M. Triana, in the provinces of Marquita and Bogota. It only requires a covering of leaves to protect it during winter. (*Lind. Cat. Plant. Exot.* 4.)

57. CALYPTRARIA HŒMANTHA. Nat. Ord. *Melastomaceæ.*—This is the most handsome representative of its family yet introduced into Europe. In its native country it is known by the name of *Sangre de Toro* (Bull's blood). It is a bushy stove shrub, and an abundant bloomer. The branches, petioles, peduncles, pedicles, and calices, as well as the under side of the leaves, covered with a yellow down; the latter are very thick, and remarkable for their pretty reticulated (net-like) nervation. The flowering racemes are nearly two feet in length, each one bearing from fifteen to twenty flowers upwards of two inches in diameter; the petals are fleshy, of a bright purple-crimson. It was first discovered in 1847, by M. Schlim, in the province of Ocana, New Granada, from whence he sent seeds and plants to M. Linden, of Brussels. It grows at an altitude of from 5000 to 7000 feet in sandy soil. It is really a splendid acquisition to the *greenhouse.* (*Lind. Cat. Plant. Exot.* 4.)

58. CHŒTOGASTRA LINDENIANA. Nat. Ord. *Melastomaceæ.*—A bushy stove shrub, with velvety leaves, ferruginous beneath, and large dark purple flowers. It was discovered on the summit of Monserrate, in Santa Fé de Bogota, at an altitude of 9800 feet. It was introduced by M. Schlim, who also found it in the province of Pamplona. (*Lind. Cat. Plant. Exot.* 5.)

MISCELLANEOUS.

MEETING OF THE HORTICULTURAL SOCIETY, APRIL 3RD, REGENT STREET.—The rooms were crowded with visitors, and the specimens of plants, flowers, fruits, and vegetables were immense, and of first-rate excellence.

Forced Pot Roses.—Mr. Francis, of Hertford, sent a collection of handsomely formed plants, each about two feet high, bushy, and nearly a yard in diameter, bearing from twenty to thirty roses, half of which were fully blown. The sorts were—*Tea Roses: Eliza Sauvage*, deep straw colour. *Comte de Paris*, blush. *Niphetos*, pale lemon. *Souvenir d'un Ami*, blush and salmon. *Vicomtesse De Cazes*, golden yellow. *Madame Bravy*, creamy white, with yellow centre. *Hybrid Perpetuals: Géant des Batailles*, vermilion-crimson. *Auguste Mie*, rosy blush. *Jacques Lafitte*, light carmine. *Miss J. C. Meymott*, bright flesh. These were much admired.

Mr. Paul, of Cheshunt, sent a quantity of fine cut flowers. The most striking were—*Bourbon: La Quintinie*, velvety lake, fine. *Tea: Gloire de Dijon*, pretty salmon and yellow, fine.

Pot Roses.—Madame de St. Joseph, rosy salmon, fine. *Niphetos*, *Auguste Mie*. *Hybrid Perpetuals: Baronne Prevost*, beautiful blush. *General Jacqueminot*, fine vermilion-crimson. *Paul Joseph*, rich shaded lake. *Charles Souchet*, rich dark crimson. *Lavine d'Ost*, pretty blush. *Duchess of Norfolk*, deep crimson, climbing rose. From Mr. M'Ewen.

Begonias.—A collection of cut specimens of twenty sorts of these handsome and interesting flowers was sent from the Royal Gardens at Windsor.

Mr. Ingram has raised several beautiful hybrids, viz.: *Ingramii*, flowers a deep rose tinged with purple; *Nitida rubra*, a rosy red. *Suaveolens rosea*, a rosy pink. *Nitida rosea*, a pretty rosy blush. These, with many others, were greatly admired.

Cinerarias.—A collection from Mr. Turner, of Slough:—*Esther*, bright crimson. *Kate Kearney*, pure white. *Mrs. Sidney Herbert*, white and crimson. *Loveliness*, white and bright rose. *Mary Labouchere*, white, with lilac tips. *Lord Stamford*, white, with a porcelain blue rim. *Amy Robsart*, rosy purple. *Lablache*, a superb deep blue. *Estelle*, crimson-purple, with a white circle round a dark disc.

Messrs. Rollisson, of Tooting, sent a *Rhododendron*, having foliage much like a *Corræa*, and the flowers are borne in terminal heads of six to eight blossoms in each; they are tube-shaped, similar to a *Corræa* blossom, but about as wide again. The flowers are drooping, of a vermilion colour. It is a handsome species, and we believe is to be named *R. refulgens*.

The collection of stove orchids was extensive; many superb specimens of the best kinds were in fine bloom. A magnificent *Acacia Drummondi* was the attraction of the day. The plant was about six feet high, and its elegant yellow flowers were in vast profusion. A plant of it ought to be in every conservatory and greenhouse. Like most other *Acacias*, it requires its side shoots to be duly cut in, in order to have it of good pyramidal shape, and in this form the flowers show to best advantage. The time to cut back the shoots are as soon as the bloom is over; the fresh shoots should be allowed just to break, then loosen the outside of the ball of roots, cut in where requisite, and repot into a larger size. By attention in thinning off the extra new shoots, and retaining a due portion to produce the flowers next spring—for it is on the *previous year's* shoots the blossoms are borne—all the genus may be managed to have handsome plants of any *small size*, suitable to any greenhouse stage. The beauty and fragrance of the noble collection of *Acacias* at Kew will repay a long journey to see, and to enjoy the perfume.

Messrs. Henderson, of Pine Apple Place, sent a collection of excellent greenhouse plants. *Hovea pungens*, with rich blue pea-formed flowers. *Boronia pinnata*, with its pretty rosy lilac flowers. *B. triphylla*, with handsome foliage and deeper flowers. A pretty white-flowered seedling *Pimelea*. *Pultænea subumbellata*, with deep orange flowers. *Dilwynia pungens*, with yellow blossoms, very pretty; the plants are liable to become naked, but, by attention to stopping the leads, they are easily kept bushy.

Mr. Watson, florist, of Hammersmith, sent a *Tree Pink;* it was bushy, two feet high, and the outside of it, in every part, finely furnished with flowers. The flowers are very fragrant, white, with a broad purple centre. These *shrub-like* Pinks will, no doubt, be soon multiplied by hybrid productions, similar to what has been effected with the *Tree Carnations*, and will be valuable acquisitions.

FLORAL EXHIBITIONS OF THE HORTICULTURAL SOCIETY AND ROYAL BOTANIC SOCIETY, recently held at 21, Regent Street, Gore House Grounds, and Regent's Park.

HORTICULTURAL SOCIETY (*Rooms*, 21, *Regent Street*, *May 8th*).—This was an excellent exhibition, the largest and best ever held here. The *Azaleas* (Chinese) were numerous; the best were—*Bianca*, *Falconii*, *lateritia*, *magna*, *Perryana*, *Duke of Devonshire*, *alba-magna*, *Narcissiflora*, a semi-double white; *Bealii*, white, striped and spotted with rosy salmon; *Beauty of Europe*, a salmon colour, edged with white; *Iveryana*, white, striped with rosy violet, was the most beautiful; *Kistelli*, a double pink; *Beauty of Dropmore*, crimson, with dark spots on upper petals; *Miltoni*, pink, spotted with red; and *amæna*, a most profuse bloomer, flowers of a bright rosy purple; it has been proved to be *quite hardy*, at Messrs. Standish and Noble's Nursery, and is a valuable acquisition.

Rare Plants.—The most superb was from Messrs. Backhouse, of York, viz., *Genetyllis tulipifera;* but it was remarked that *Hedaroma tulipifera* is probably more correct. It is a hardy greenhouse *shrubby* plant, its leaves and growth very much like *Pimelea decussata*. The flowers are produced at the extremities of the shoots, each blossom is about two inches long, and one across the mouth, very similar in form to a *Fritillaria* or *Canterbury Bell;* they are *drooping*, like bells, white, spotted and streaked towards the edge of the petals with a rich crimson-red. It is easy to cultivate, and ought to be in every greenhouse; in growth it is like a robust *Epacris*. *Genetyllis macrostegia*, a greenhouse shrubby plant; the flowers are bell-shaped, drooping, of a deep crimson-red. *Rhododendron Dalhousiana*, having eight flowers in one head; each blossom much like the common white Lily in size and form. *R. Edgworthi*, having very large flowers, white, with an occasional tinge of blush, and highly fragrant. *R. formosum*, its flowers are large, of a waxy white appearance, resembling those of *Azalea alba-magna*. *Calceolaria violacea*, a neat shrubby greenhouse plant; the flowers are pale blue, tinged with yellow, and dark spotted, very pretty. *Deutzia gracilis*, as standards (similar to Roses), in profuse bloom; very chaste and pretty. *Prunus sinensis alba-plena*; this double-blossomed Peach is handsome, and an admirable plant for forcing. *Salvia gesneriflora*, the size of a *large gooseberry bush*, in magnificent bloom; its rich scarlet flowers, in a profusion of spikes, were highly ornamental. *Eliocarpus reticulata*, a pretty shrubby plant, with a profusion of spikes of its little bell-shaped, drooping, white flowers; very neat for the greenhouse. *Schizanthus violaceus*; the flowers are of a dark blue, very pretty. *Acacia grandis*, the plant bushy, six feet high, and its profusion of rich yellow blossoms and neat foliage were very elegant. *Berberis Wallichii*, somewhat like *B. Darwinii*, but both leaves and blossoms larger in size, handsome.

ROYAL BOTANIC SOCIETY (*Regent's Park, May 9th*).—The collections of plants were not so numerous as usual.

Roses in Pots.—Mr. Francis, of Hertford, had a collection of superb plants, in which were *Paul Perras*, having 80 flowers; *Devoniensis*, 20; *Baronne Prevost*, 64; *Pauline Plantier*, 50; *Souvenir de Malmaison*, 27; *Bougere*, 32; *Géant des Batailles*, 37; *Chenedole*, 26; and *Coupe de Hébé*, 35. These were in admirable health and great beauty, and are fine kinds for forcing.

Rare Plants.—Meyenia erecta, a greenhouse shrubby plant; flowers much like an *Achimenes*, of a rich purple colour.

Pelargoniums (best 12): *Governor-General*, *Carlos*, *Lucy*, *Basilisk*, *Rosamond*, *Majestic*, *Mochanna*, *Exactum*, *Rival Queen*, *Clara*, and *Petruchio*. *Six best Fancies*: *Madame*, *Delicatum*, *Gaiety*, *Formosissimum*, *Caliban*, and *Electra*. Best six shown by an amateur were, *Fairy Queen*, *Magnificent*, *Duchesse d'Aumale*, *Stataiskii*, *John Bull*, and *Madame Miellez*.

Pansies in Pots (best 12): *Brilliant*, *Uncle Tom*, *Monarch*, *Ophir*, *Lord John Russell*, *British Queen*, *Marchioness of Bath*, *Satisfaction*, *Sovereign*, *Purple Perfection*, and *Emperor*.

Cinerarias (best 6): *Optima*, *Loveliness*, *Bousie*, *Sir C. Napier*, *Lady Paxton*, and *Picturata*.

Large collections of *Stove* and *Greenhouse Plants* were contributed by Mr. May, gardener to H. Colyer, Esq.; Mr. Barter, gardener to H. Bassett, Esq.; Mr. Green, gardener to Sir E. Antrobus, Bart.; and Mr. Rhodes, gardener to J. Phillpots, Esq., of Stamford Hill. In Mr. Colyer's group were immense plants of *Epacris grandiflora*, *Eriostemon neriifolium*, *Boronia pinnata* and *serrulata*, *Ixora crocata*, *Azalea Murrayana* and *variegata*, *Ixora javanica*, *Vincas*, *Leschenaultia formosa*, *Erica elegans*, one of the finest plants of the kind perhaps ever seen; *Aphelexis macrantha purpurea*, *Pimelea spectabilis*, *Chorozema Henchmanni*, and *Polygala oppositifolia*. Mr. Barter also had an admirable collection, in which were fine plants of *Ixora javanica*, and *crocata*, *Eriostemon intermedium*, *Stephanotis floribunda*, *Chorozema Lawrenceanum*, *Polygala acuminata*, *Azalea Perryana*, still one of the best varieties in cultivation; *A. coronata*, *Erica Cavendishi*, a fine plant, but insufficiently in bloom; the blue *Leschenaultia*, *Boronia pinnata*, *Pimelea Hendersoni*, very highly coloured; the sweet-smelling *Franciscea confertiflora*, and a *Vinca*. Mr. Green sent an immense double red *Azalea*, *Polygala acuminata*, *Ixora coccinea*, *Eriostemon intermedium*, *Ixora crocata*, *Aphelexis macrantha purpurea*, *Azalea Iveryana*, literally one mass of white blossoms, in which were fine stripes of purple; *Pimelea spectabilis*, *P. Hendersoni*, *Franciscea confertiflora*, *Leschenaultia formosa*, *Chorozema Lawrenceanum*, *Daviesia umbellata*, some *Cape Heaths*, and *Epacris miniata*. Mr. Rhodes produced *Dracophyllum gracile*, a useful plant for cutting from for bouquets; the rose-coloured *Vinca*, an *Everlasting*, *Epacris grandiflora*, some *Cape Heaths*, *Boronia serrulata*, *Eriostemon neriifolium*, *Stephanotis floribunda*, *Tetratheca verticillata*, *Leschenaultia formosa*, *Polygala acuminata*, and *Chorozema Lawrenceanum*. The other collections were numerous, but comprised similar kinds of plants to those of the large collections.

HORTICULTURAL SOCIETY (*Gore House*, *May* 16*th*).—The collections of specimens shown were of first-rate excellence, and in some classes far exceeded any ever before seen, particularly the *Roses*, and greenhouse *Azaleas*. We can only insert the best and the rarest.

New or Rare.—*Andromeda formosa*, the flowers are pure white, larger than those of *A. pulverulenta* or *A. cassinifolia*, very neat and pretty. *Verbena: Mrs. Woodruff*, in the way of *Robinson's Defiance*, but the flowers are double the size of those, and of a similar brilliant scarlet colour. *Azalea: Empress Eugénie*, the flowers are of exquisite form, of a rosy-purple, beautifully spotted with deep velvet. *Gompholobium barbigerum*, a charming greenhouse plant; the flowers are as large as a halfpenny, of a rich deep yellow, and produced in abundance, very showy. *Swainsonia lessertifolia*, a neat dwarfish plant, blooming very freely, and its numerous lilac-purple pea-like flowers render it a charming greenhouse ornament. *Rhododendron Edgworthi*; the plant shown by Messrs. Standish and Noble was a *standard* four feet high, and had twenty flowers, each being, at least, *five inches* across the expanded front of the blossom, waxy-white, some having a slight streak of blush; the centre of the flower is of greenish-yellow; they are delightfully fragrant. A variegated-leafed *Pelargonium*, *Countess of Warwick*, in the way of *Flower of the Day;* leaves green at the centre, then a deep crimson horseshoe mark, and the outer portion a white margin; the flowers are of good form, large truss, and a brilliant scarlet, very fine. *Genetyllis* (Hederoma) *tulipifera;* plants of this very beautiful flower were shown by Messrs. Garraway, of Bristol, and attracted universal attention.

Roses in Pots.—Those from Messrs. Lane and Son were literally *pyramids of flowers*. The best among them were, *Coupe de Hébé*, which is of exquisite shape; *Chenedole*, *Lamarque*, *Paul Ricaut*, *Queen*, *Lady Stuart*, *Paul Perras*, and *Géant des Batailles*. The following *New Roses* are very fine:—*Alexander Bachmetoff*, rich rosy purple; *Madame Dumage*, very large; *Prince Leon*, vivid rosy crimson, superb; *Baron Kermont*, lilac-blush, superb form; *Madame Duchere*, pink and lilac, fine form; *Madame H. Jacquin*, a brilliant rose colour, large buds; *Louise Odier*, bright pink and lilac, full, and in large clusters, fine; *Paul's Prince Albert*, rich crimson, good form; *Paul's Helen*, light blush, full, very fine; *Leon Plee*, very large lilac and pink; *Madame Philip*, blush, with carmine edges, fine; *Jules Margottin*, bright cherry, free bloomer, superb; *Gloire de France*, beautiful rosy purple, full, but not deep; *Adam Paul*, very large and full, rose colour, very sweet.

Pelargoniums, large flowered (best 12).—*Carlos*, a large bold flower, with dark top petals and white centre, very fine; *Basilisk*, bright scarlet; *Governor-General*, rosy scarlet, very fine; *Sanspareil*, a spotted variety; *Lucy*, lilac-rose, dark top, with white centre; *Magnet*, red, and very showy; *Queen of May*, a fine plant, of bright orange colour; *Rival Queen*, rose, and very free; *Majestic*, dark; *Clara*, rose; *Magnificent*, a fine specimen; and *Exactum*, white.

Fancy Class (best 6).—*Madame Sontag*, a noble plant of one of the best kinds, being bright rose, with clear white centre; *Cassandra*, violet-crimson; *Criterion*, crimson; *Gaiety*, white and maroon; *Delicatum*, light; and *Electra*, bright rosy crimson.

BRIEF REMARKS, &c.

APHELEXIS.—To grow this tribe of plants vigorous they require a rich turfy sandy peat. If the peat be poor, one-third of rich sandy loam should be mixed with it. They should be repotted, having a free drainage, when the blooms are fading, about July; then be placed in the open air, sheltered from wind and mid-day sun. At the end of September they should be housed again, placing them in an airy, dry situation in the greenhouse. When they begin to grow in spring, give them occasionally manure-water. If straggling shoots be cut in, they push lateral ones, so as to enable you to have the shrub compact.

On Plants affected with Mildew.—In a former number of the *Cabinet* I observed a correspondent stated that during several previous months a quantity of his Pelargoniums and other plants had suffered from mildew, although the house was not a cold or damp one. I was similarly circumstanced, and being advised to water them at the roots once a week with nitre dissolved in water, in the proportion of a quarter of an ounce to a quart of of water, I did so through the remainder of last autumn, and now have not a vestige of the mildew.—*Lucy.*

Queries on Ferns.—The pages of your valuable *Magazine* have so frequently instructed me upon subjects connected with every branch of floriculture, that I am anxious through its medium to procure information upon one which interests me much at present. A great admirer of the Order *Filicis*, I am wishing to make an entire collection of British Ferns, and I should esteem it a great kindness if any of your intelligent correspondents would afford me a few hints. I am not aware of any work upon the subject. I should be glad to know what soil is likely to suit best; what degree of moisture, shade, etc. etc., or where any collection is to be seen. I propose planting them on rockwork;—which will be the best season, and when the best time to search for them? A list of the varieties, and where they are most likely to be found, would be most acceptable. I wish to make the collection myself, therefore, of course, I cannot expect to complete it for several seasons. I must plead the excuse of my being a very young botanist for thus troubling you, and hope the desire to assist a beginner in the study will induce some of your able contributors to give me the information I require.—*A Subscriber.* [Procure Francis's Book on Ferns; it will supply the information required.—*Editor.*]

On Grafting Pelargoniums.—On a former occasion I stated that at the end of last July I had grafted half a dozen very distinct coloured Pelargoniums upon a strong plant of the old vigorous-growing variety, Commander-in-Chief, doing it by first heading back to about four inches long the six leading branches, and immediately inserting a graft of another kind into each, in the whip-grafting method, having the graft a well-ripened shoot of that year's growth. After claying and mossing over the same, I placed it in a close frame, shaded, and sprinkled the foliage over daily to keep it fresh. In three weeks all the grafts were united, and at the end of September I repotted the plant, and now (May 20) the six kinds are in beautiful bloom in my conservatory, having been gently forced to get them thus early into bloom. The pretty contrast of form and colours of so many varieties in one plant render it so interesting an object as to deserve the attention of the readers of the *Cabinet.*—*Clericus.*

FLORAL OPERATIONS FOR JUNE.

Flower Garden.—The recent weather has been so cold that it has been hazardous to attempt putting out bedding plants, but we hope danger from frost need not now be apprehended, and as early as possible the planting should be completed; in many cases shading for a few days will be essential to success.

We have frequently called the attention of our young readers to the desirability of paying strict attention to the judicious arrangements of flowering plants, as regards height and harmony of colouring. It is true that, of late years, this subject has become a matter of study amongst gardeners, and great changes for the better have taken place in this respect; still we are far from supposing that we have arrived at perfection. Always bear in mind—if beauty, order, and effect are desired—that attention to this, next to a well-laid out flower garden, is essential to their full development. In producing well-arranged contrasts, the different shades of colour must be as distinct from each other as possible; for instance, white should never be placed in contact with yellow, or deep blue with crimson; but white forms a good contrast with blue or red, blue to orange, yellow to purple or violet, dark crimson to light blue, and scarlet should be placed near those which have a profuse green foliage, as red and green form the best contrast. Orange and violet do well. Greenish-yellow and rose contrast well.

Attention will now be required to water freely *established* plants, being careful it does not pass off; and in the *evening* sprinkle over head *newly planted* bedding plants, it tends to promote an early re-establishment. *Pinks* and *Carnations* will require due care in securing, and by the middle of the month pipings of *Pinks* may be taken off, and towards the end, layers of some early *Carnations* be made, and thin away extra flower-buds. *Dahlias: thin out the shoots*, so as only to retain about four or five. Stop the leading stem, at about nine inches high, to give support to the side ones. Cuttings will soon strike root. If the weather be dry, water daily, a good supply at once; a portion of mulchy manure, spread over the roots, is very beneficial. Seeds of *Sweet Williams*, *Canterbury Bells*, *Scabious*, etc., should now be sown for next year's blooming. *Auricula* and *Polyanthus* must be kept in a *shady* but airy place. Prepare the compost for repotting in next month, and sow seed as soon as ripe; also *Pansy* seed.

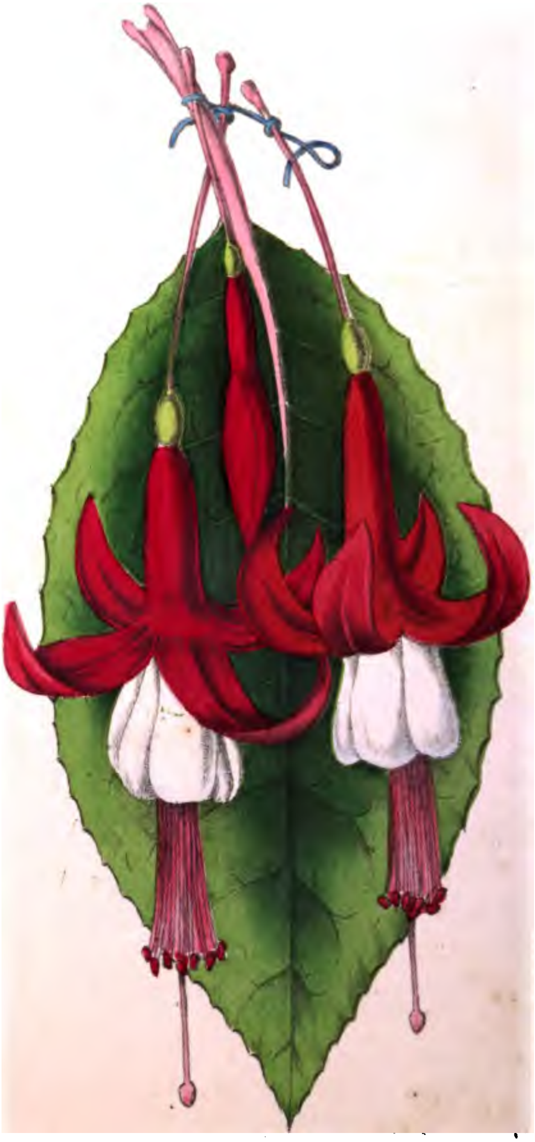
NEW FLOWERS.—Let attention be given to hybridizing, with a view to obtain improved varieties. *Roses:* maggots often infest the buds; carefully examine, and destroy. Green-fly, too, stop at first by fumigation, or sprinkle the leaves and buds under and over with a solution of size and hot water; use it in a milk-warm state; it will coat over the insects and soon destroy them; a day or two after sprinkle the bushes over with pure water. A solution of glue will do quite as well as the size. *Chrysanthemums:* young plants should be prepared. *Violets* for next year's blooming, attend to beds of, etc. Put off cuttings of *Pansies*.

GREENHOUSE, ETC.—The greenhouse plants may now be placed out of doors; let them be duly watered, for if allowed to flag, the result is that the leaves are damaged. Moss placed between the pots keeps the soil cool.

The house will now have to be kept gay and sweet by *Balsams*, *Globe Amaranthus*, *Cockscombs*, *Brachycoma*, etc. Repot as required, to keep the plants in a growing state. *Achimenes* will now be coming into bloom; they repay for every attention. Cuttings of nearly all greenhouse plants should now be put off; May and June are the best months for that purpose. *Cinerarias* are highly ornamental, and well worth encouraging. Any done blooming and seed collected, if required, should be turned out of the pots entire into a bed of rich soil, where there is shade from eleven to four o'clock. There they will flourish, and supply an increase for next year's bloom. Cuttings of *Roses* may be put in, and will soon strike. *Camellias* that have been forwarded by forcing the shoots and buds, should now be placed in a cooler situation, to give vigour to them. When the foliage of *Ranunculus* or early *Tulips* is quite dead, the roots may be taken up. *Pelargoniums*, as they go out of bloom, must be prepared for another season.

Ericas.—The early blooming kinds should be drafted out, and others may follow them as fast as they go out of bloom. Examine the plants very carefully, and see that they are in a proper state as to moisture; and if you are an exhibitor, never put a plant of this or any other kind into a van, without previously giving it a good soaking of water. The young plants which are not blooming had best be placed in a pit where they can be exposed or not, as may appear necessary. Stop such as require it boldly back, and train them so as to form a proper foundation for a good specimen. As the principal specimens go out of bloom they may be removed to a shady situation to make their growth, being previously cut in, if necessary. Supports for an awning must be placed over them, so that, in case of heavy storms or continued rain, they can be protected a little. Clear, weak manure-water may be used occasionally for the free-growing kinds. With regard to ventilation, there is no fear of your over-doing it after this time. Repot any requiring it, but do not over-pot; the one-shift system is injurious to nearly all the tribe, the only exceptions are those of rapid growth and robust habit. Rough peat and silver sand, with bits of stone, etc., and a liberal drainage, are requisite. *Epacrises*, etc., should also be duly attended to in repotting, etc.

Azaleas in the forcing pit must be kept shaded during bright sunshine, and a moist growing atmosphere must be maintained around them. Water freely with weak guano-water, and sprinkle the vacant parts of the house or pit daily, but not upon the bloom. As the plants go out of flower, place them in heat, to perfect their wood for next year's blooming. *Camellias:* promote the well ripening of the wood, before fully exposing them to the open air. The supply of next season's bloom depends on *this attention now.*



No. 1. Mrs. Story. **No. 2. Queen Victoria.**

Reader's Surname (in block capitals) .... (No. of Seat) .... (Date) ....19......
Please 1. Fill in the Number of your Seat.
2. Hand the slip in at the Assistant's desk.

The Floricultural Cabinet.

JULY, 1855.

ILLUSTRATIONS.

FUCHSIAS.

No. 1, Mrs. Story; No. 2, Queen Victoria.

The Fuchsia derives its name from Leonard Fuchs, a famous German botanist of the sixteenth century.

The Fuchsia has been placed, in the language of flowers, as the *emblem of taste*, for with its richly coloured blossoms there is a peculiar harmony and beauty in the unassuming appearance of the flowers, which hang with so much gracefulness from amongst the elegant-shaped foliage of the plant. The length of the stamens also add greatly to the beauty of these pendent blossoms, having the appearance of so many gems suspended from a small roll, in many instances, of the richest violet-coloured ribbon, over which the beautiful calyx hangs like a half-expanded parachute, allowing only a glimpse of the rich purple, violet, or other handsome corollas to be seen between the openings, the whole being headed by an emerald-coloured receptacle for the seed. The more modern taste as to what constitutes a perfect blossom has decided that the sepals should *reflex* so that the *tips* of the segments curve inwards, thus fully exposing the corolla to view. The *calyx buds*, before they are expanded, have the appearance of ripe barberries, and in some kinds the veins of the leaves are tinged with a fine crimson colour, which contributes to the beauty of the plant.

The first Fuchsia which was introduced into England was the *F. coccinea*, a native of Chili. It was unknown to the Old World until the year 1788, when a plant was presented by Captain Firth to the Royal Gardens at Kew, from whence it was soon afterwards distributed as a *stove* plant. Mr. Lee, nurseryman, of Hammersmith, was the first who had plants for sale, which, from their great beauty, brought a high price, from ten to twenty pounds per plant being given. Since that period a vast number of species and improved varieties have been introduced into our gardens, and none more singularly neat and pretty than those with a *white corolla*, that have recently been raised; two of the very best we have figured in our present number, and others having *double white* corollas, also striped ones, we intend to give in a short time.

Fifteen years ago the charming Fuchsia *venus-victrix* was raised, and its flowers having a clear white tube and sepals, with a violet-blue corolla, were universally admired. Attention was soon directed to obtain similarly coloured flowers of a larger size; the first was our *Queen Victoria*, of large size, white tube and sepals, with scarlet corolla (figured in vol. x of this Magazine), and subsequently many other white ones have been raised, having corollas of various shades from crimson to deep purple. The two varieties figured in our present number, having rich coloured tubes and sepals, with *pure white* corollas, are just the reverse in arrangement of colour to the previous section we have above noticed, rendering them a most valuable and highly interesting addition to this lovely blooming family, and supply us with sources for hybridizing and raising still greater beauties of this section. Many years ago we had a *Fuchsia thymifolia*, the flowers were small, changeable in colour from dark mulberry to pale pink, and in occasional instances it had *pure white blossoms*. We do not know what kinds of Fuchsias were impregnated by the raiser to obtain the *new varieties* having white corollas (which are now figured), as well as others we have referred to, but have been told that first a variety with flowers *wholly white* was raised, and that between it and a variety named *Banks's Glory*, whose blossoms are crimson, with rich purple corolla, the several white corollaed, with crimson or scarlet tube and sepals, were produced. They are, however, most valuable acquisitions, and every admirer of Fuchsias especially interested in raising improved hybrids ought to possess the whole of them. They are free growers, and bloom profusely.

REMARKS ON A CONTINUOUS SUCCESSION OF FLOWERS IN THE FLOWER GARDEN.

BY A CONSTANT READER AND ADMIRER, F. E., COUNTY OF DURHAM.

I VERY much admire the admission in your valuable publication of remarks on and suggestions of gardening improvements. I have devoted much time and have had great success in the immediate subject of this letter, under every possible disadvantage of climate and soil. The observations I am about to make apply principally to the practice in the counties of Durham and Northumberland, having seen but little (continuously) in more favoured localities; but I suspect, in the generality of gardens, the same deficiency would be found in most counties—I mean the neglect of herbaceous and bulbous-rooted plants, and sacrificing the appearance of the garden by keeping the beds bare for the whole season, previous to putting out the half-hardy plants (*Geraniums*, etc., usually so called, but properly they are

Pelargoniums), which, in the June number of the CABINET, you recommend being delayed till now, and which *here* can never be sooner commenced with safety. The plan I pursue is the following.

I cultivate, in a small reserved piece of ground, a number of hardy early-flowering plants, plain and variegated leaved *Arabis*, *Honesty*, *Wallflowers*, etc. (*Anemones* would be admirable, but they do not succeed here); these are put in the place of the *Geraniums* when taken up, and the *bulbs* planted at the same time. I send you a description of some of my principal beds. Two large baskets made of wood driven into the ground, one was planted round the edge with tufts of *Oxalis*, and the other with pots of different coloured *Crocuses*, and were in bloom together; the centres had a dozen *Hyacinths*, which bloomed splendidly, and the space between the edge and centre had *Tulips*, still in bloom (the *Crocuses* will be removed in their pots to an outhouse till they are wanted again); two beds *Wallflowers*, another bordered with variegated *Arabis*, and the middle *Tulips;* sixth, purple *Honesty*, seventh, *Primroses*, edged with white *Narcissus;* these do not require removing, but left to die down. There is sufficient room for shrubby *Calceolarias* to be inserted; and it is worthy of remark that two, which were left to die, are coming up vigorously, having lived through the last severe winter without protection, for the first time the last ten years in this place. The only things in this list that cost money were the *Hyacinths;* the rest were all produced from former plants.

The *Geraniums*, etc., will now take their places. The white and purple *Honesty* (if to be removed after flowering) require sowing every year for the next; it makes a beautiful bed. I saw large masses of it in the Zoological Gardens at Clifton, on the islands, where, of course, it is left to sow itself. Where plants can be left undisturbed in shrubberies, etc., there are always plenty of self-sown plants.

In the mixed beds I cultivate all sorts of *perennial* plants; they have a great advantage over annuals, besides their continuing to grow in the same place for years, in the *earliness of the appearance of their foliage* above ground, which presents a great variety of shades, and *furnishes* the space before their flowers appear, of which so many precede the annuals that are sown in the open ground. Several nurserymen (two of great eminence in the North and near London) have regretted with me the neglect of herbaceous plants, and said they would be very glad to cultivate them extensively, if they met with any encouragement, but that there is no demand for any but bedding-out plants. This has determined me to throw these slight suggestions on paper, and if they are considered worthy a place in the FLORICULTURAL CABINET I shall be pleased, and hope that they may tend to encourage a more general growth of the classes of plants I have referred to. I am seldom without some flowers in bloom, except when they are covered with snow. I think if my plan were generally followed, the aspect of our gardens would be much improved. The surprise my early flowers excite proves they are not very commonly seen thus arranged; and if the SUCCESSION of the floral tribes were duly considered, this, their most *wonderful attribute*, must be appreciated.

In my previous remarks I perceive I have omitted to notice two important beds, as they do not come under the head of very early flowers, which are principally the objects of my remarks. They are the beds reserved for *Dahlias*, which would, of course, remain bare much longer than those for *Geraniums*, etc., as they are much later coming into growth and flower. I have round one, at the outer edge, alternately *Pæonies* of different sorts, and the perennial *Poppies*. The early foliage of some of the *Pæonies* is red or copper coloured, the old *Pæony* grass-green, the *Poppy* sea-green; they form a beautiful hedge, and will very soon be in flower, after which they will be cut down, and the *Dahlias* by that time have filled the bed. The second *Dahlia* bed is edged with a small blue *Salvia* (or *Stachys*), which grows very thick, and remains a long time in flower, is seen at a considerable distance, and only requires cutting in after flowering.

I have found a simple contrivance of my own invention of great use in marking flowers, as *Poppies*, *Tulips*, *Roses*, etc., for seed, removal, or anything requiring a mark—namely, Berlin wool; of the respective colours if selfs, or mixed wool if variegated. My gardener likes it much, saving time, and tied round the stalk is not liable to be lost.

GENTIANELLA.

BY FLORA.

It seems little understood that this beautiful plant can easily be propagated by *seed;* the fact is, that the seed does not vegetate the *first year*, persons therefore, finding no vegetation the *first year*, conclude the seed to be bad, and give up in despair; whereas if they waited nature's own time, they would be abundantly repaid. By pursuing that method of increase I can easily grow Gentianella in any desired quantity, and have bordered a garden with it.

[We feel obliged by this communication, as numerous complaints have been sent us relative to the great susceptibility of injury which this most charming and ornamental flowering plant is liable to when taken up and divided for replanting. But by sowing seed where the plants are to remain, and display their *unrivalled blue* flowers, the injury is avoided, and a permanent edging will readily be maintained. By scattering a few seeds amongst the plants each season a regular succession may be had, to supply any portion that may perish from age or other casualty.—EDITOR.]

TREATMENT OF INDIAN AZALEAS.

BY THE FOREMAN OF A LONDON NURSERY.

In your April number there is an excellent article on these plants. My mode of treatment is different in some particulars, but not having seen any plants flourish equal to those under my care, I am desirous to add my mite of practical information, which I hope will be of additional service to those readers who, like myself, are ardent admirers of this handsome showy genus.

All tender Azaleas require one general mode of treatment, as follows. Pot them as soon as they have done flowering, which will be about the end of May, except those intended to be left for seed, which must remain until they have ripened their seed. Use a mixture of equal parts of sandy loam and peat, with a small portion of leaf-mould, in preference to all peat; and be careful in potting to give a good drainage of broken potsherds; for although they delight in moisture, stagnant water usually proves injurious to them. About the middle of June, place them in a somewhat sheltered and shady situation, out of doors. Allow them to stand in this situation till September, then remove them into a pit or greenhouse, in any airy situation, until they are wanted for flowering. It is a great assistance to them, when about expanding their flowers, to remove them into an increased temperature; this should be from sixty to sixty-five degrees Fahrenheit, and the plants may be introduced about the middle or end of September, which will come into flower towards the end of October, and will continue blooming till December; others brought in the middle of October will continue flowering till January; those brought in the end of November will continue flowering till February, when those in the pit or greenhouse will commence flowering, and continue till May. When they are in flower, a good supply of water is requisite, to enable the plants to support them; any deficiency in this respect will cause the flowers speedily to fall.

When they have done flowering place them in an increased temperature of a medium forcing house or pit, thus assisting them by every means to make *young wood*, a good supply of which must be secured before they are removed from the increased heat. For this purpose, syringe them about once or twice a week, and after they have grown considerably, remove them to the greenhouse, previous to their being turned out of doors, and treat them like other greenhouse plants, merely giving them a good supply of air and water.

When the young shoots are about four inches long, they are best calculated for cuttings. Take them off after the plants are removed to the greenhouse; separate each cutting *close* to the old wood from whence they start; trim off no leaves but those which grow on that part intended to be inserted in the pot. They must be planted in either sand or light soil, the former is the best; plunge the pots in a little heat, and place a hand-glass over them, and in the course of a fortnight or three weeks they will strike root.

When they have struck root, transplant with balls into single pots, filled with the compost recommended for the old plants, and again plunge them in a little heat until they have begun to grow, after which they may be removed to the greenhouse, and be treated like other greenhouse plants. Many of the greenhouse species and varieties will bear a good degree of cold, and will thrive very well if planted under the wall of a stove, greenhouse, or other warm situation; but in winter they must be sheltered by mats from the effects of frost.

CULTIVATION AND EFFECT OF THE FUCHSIA AS A STANDARD ON A LAWN.

BY MR. JOHN LAWSON, GARDENER, EDANHAM HOUSE, NORTH DEVON.

As ornamental and half-hardy shrubs, the several species of Fuchsia, and their very numerous varieties, are at once the freest bloomers, the most elegant in habit, and the least difficult of cultivation, of any of the vast number of shrubs with which the collections of this country abound. In any situation they are therefore, when in a healthy state, exceedingly handsome plants; but that in which they are pre-eminently beautiful is on a well-kept lawn, either as dwarf bushes or trained with a single stem to the height of four or five feet, with their pendent flowers and branches reaching half-way down the stem. In such situations, when happily associated with surrounding objects, their beautiful and graceful appearance surpasses any thing the imagination can conceive.

Having offered these preliminary remarks, I will now endeavour to describe the mode of culture which I have found attended with the least expense, and greatest success in preserving them uninjured through the winter. Plants that have attained the height required (about one to two years' growth from cuttings) are selected and planted in a compost of one part well-decomposed manure, one part of sand, and two of yellow loam. Previous to this compost being introduced to where the Fuchsias are to be planted, the whole of the common soil is removed fifteen inches deep, and about four feet wide. In planting, the roots are carefully spread out. The plant is then neatly tied to a straight stake, proportioned to the height of the stem. The latter is previously pruned to two-thirds of its own height, and as the top increases, this pruning is repeated from time to time on the lower branches, till the stem has attained the desired height. Some of the kinds bloom so profusely as to weigh down the shoots too much; to prevent this I have a wire frame-work, in shape like an umbrella, and secure the branches upon it, thus secured they have a pretty and elegant appearance. About the end of October the plants are lifted, the roots shortened, and placed in pots of light earth; they are then removed to a warm part of the greenhouse, where they are kept for ten days or a fortnight, till they have recovered from the check received from lifting, after which they may, during the day, be fully exposed to the air in a cold frame or greenhouse. Towards Christmas, if kept very cool, they will have shed the most of their leaves, and may then be placed close together. I have found that plants of four feet in height, if allowed plenty of air during the middle of the day, keep very well in an area of nine inches square each. A one-light frame, or, what is nearly as good, a thatched portable covering, five and a half feet long by three and a half in width, would thus contain thirty-four plants, a greater number than in most cases would be required. I therefore mention this merely to show the practicability of supplying, at very little expense or trouble, one of the greatest ornaments the flower-garden can possess. The plants may again be planted in the open ground any time between the beginning and end of April. In a sheltered garden, with a dry subsoil, I am quite aware that protecting the Fuchsia during winters of ordinary severity is unnecessary; but thinking there may be a few whose gardens are situated like my own, in a low and damp situation in the north of England, therefore whoever are so circumstanced will find this care indispensable.

ON THE ADVANTAGES OF APPLYING LIQUID MANURE FOR THE GROWTH OF PLANTS.

BY AN OLD LONDON PRACTITIONER.

FEW things, in the management of plants, are more overlooked than that of applying liquid manure. When the roots of plants are confined within a garden pot the soil soon becomes exhausted; and if it be desirable to grow the plant rapidly, it must be turned out of the pot, and the exhausted soil shaken from the roots, and replaced with fresh earth, or recourse must be had to liquid manures. Floriculturists cannot be aware of the advantages of applying manure in a liquid state, or it would be more frequently used. I have found that all free-flowering plants, such as Petunias, Geraniums, some of the Calceolarias, Balsams, and Cockscombs, are improved, and indeed I have not found any flowering plant whatever that has not been benefited by a greater or less quantity of this element. Many New Holland plants are increased in vigour by this treatment; even the *Epacris*, *Diosma polygala*, and many others, besides not a few of the Heaths, are benefited, when it is occasionally applied, as, for instance, once every seven or ten days. In watering plants with liquid manure, it will be observed that the soil, after having been watered a few times, does not dry so soon as when watered with clear water, and this independent of the extra nutritious qualities left in the soil by the application of manure-water; it is, then, a great point gained, by whatever means effected, when plants, whether in pots or in the natural soil, can be cultivated without the necessity of frequent waterings. As there is no more labour required in using manure-water than in applying the same quantity of water without any mixture of manure, considering, too, that its advantages must be obvious to all who give it a fair trial, it does seem somewhat unaccountable to see persons exerting a great amount of labour to accomplish very small results. It must be regarded as so much labour misapplied, when, had half the same labour and attention been bestowed, using at the same time liquid manure, far more satisfactory results would have been obtained.

ORCHIDS.

BY J. BATEMAN, ESQ.

In respect to the leading points in cultivation—supposing the plants established in a suitable house, which is an indispensable preliminary, the following rules will be found to contain all that is most essential for their successful management.

1st. The plants can scarcely have too much light or too little sun.

Light prevents mildew, strengthens the fibre, and checks the disposition to throw up a succession of weakly shoots, which are quite incompatible with the production of flowers. The sun, on the contrary, scorches and turns the leaves yellow, especially when it first begins to shine powerfully upon plants that have just left their winter quarters. In order to secure as much light as possible, many species should be suspended in the air from rafters or chains, some being placed on blocks of wood (cork wood is the best), or fragments of cocoa-nut husks, and others in baskets of wire or wicker-work filled with moss and broken peat, or in pots with pierced sides. The latter answer perfectly for plants (*e.g.*, the Saccolabiums) which are of slow growth, and thrust their roots into the air. Baskets answer best for Stanhopeas and the like. To prevent injury from the rays of the sun, shading is of course necessary, but this should be so arranged as to be easily removed, as it ought not to be continued for more than ten or twelve hours on the very longest summer's day. Exotic climbing plants introduced sparingly are advantageous, and have a good effect.

2nd. Take care of the roots.

On the health of the roots everything depends. The winter is with them the most critical season, for if suffered to grow too dry they shrivel up and perish; if too wet they rot. Much, of course, depends upon the mode in which the plants are potted, and which should be such as to admit of their readily parting with all superfluous moisture; and to secure this nothing is better than a plentiful admixture of broken potsherds. High-potting is now so generally practised in good collections, that it is needless to insist upon its importance. Rapidly growing plants, such as the different species of *Phaius*, *Gongora*, *Peristeria*, *Stanhopea*, etc., require to be broken up and entirely repotted every second or third year; on the other hand, there are some air-plants, etc., that may remain undisturbed for five or ten years together.

3rd. Beware of noxious insects.

Orchidaceæ are more particularly exposed to the attacks of the following insects:—woodlice, crickets, and cockroaches, the thrip, a minute woolly white scale, and a diminutive species of snail; the two last being infinitely the most pernicious. Woodlice are easily kept in check by placing the plants on saucers, or within troughs filled with water, especially if the valuable aid of a few toads be called in. The " Oniscamyntic Epiphyte-stand," invented by Mr. Lyons, is an ingenious and, no doubt, effectual way of accomplishing the same end. It is made by merely fixing a forked branch, or block of wood, to the raised centre of a massive saucer or feeder, which, being kept constantly full of water, forms a sort of fosse—impassable to vermin—round the plant it is intended to guard. Crickets and cockroaches are very fond of flower-scapes, and to be dreaded accordingly. Red wafers scattered over and among the pots are to them very tempting baits, and if swallowed, the red lead they contain acts as a poison; but these pests are best destroyed by the mixture recommended for the white scale. The thrip does not do much mischief, except where plants are either neglected or grown in too hot and dry a temperature. It usually first appears among the *Cataseta*, and is to be removed by careful washing. Small snails abound in some collections, while in others they are unknown; it is difficult to conjecture whence they come, and all but impossible to eradicate them entirely. They batten upon the tenderest roots, such as plants put forth when they are just beginning to grow, and if not kept in check would speedily produce irretrievable mischief. Lettuce-leaves, slices of potato, turnip, etc., are very enticing; and while they divert the attention of the enemy from the roots, they also afford an opportunity of capturing him. The collections which are watered exclusively with rain-water are the least infested. But the worst plague of all is the small white scale, which, in its first insidious approaches, appears only as a white speck upon the leaves, then covers them with a soft whitish down, and finally kills them. For this the following remedy will be found efficacious: viz., dissolve half a pound of camphor in a pint of spirits of wine; the result will be an impalpable powder, to which add one pound of Scotch snuff, one ditto pepper, one ditto sulphur, and keep in a bottle (carefully stopped). This mixture should be dusted over the infected parts, and repeated whenever or wherever the enemy shows itself. If persisted in for some time, the mixture rarely fails to effect a perfect cure; and it has the further good property of acting as a most deadly poison to cockroaches, etc., which have quite disappeared in the collection at Knypersley since this mixture came into frequent use. Besides the above annoyances, the red spider and the brown scale are frequently injurious, but never except in cases of gross neglect.

4th. Give the plants a season of rest.

Without a season of rest most plants will not flower at all, and others do so very imperfectly. It is easily accomplished in a variety of ways, either by moving the plants from the warmer to the cooler end of the house, or by diminishing the quantity of water, or by placing them in a cooler house. Even exposure in a hot, dry atmosphere, although it scorches their leaves, not unfrequently throws them into vigorous flower. Plants from the East Indies, and from other climates, where the extremes of drought and wet are not felt so severely as in Brazil or Hindostan, require a season of rest proportionably short, and of a less decided character.

5th. Attend to the condition of the air.

In winter 60° to 65° is a wholesome temperature for most of the species; in the summer it may rise to 70° or 75°, or even higher, if derived from the heat of the sun. Where there are two houses, the warmer one should not be lower than 70° even in winter; but, fortunately, there are comparatively few kinds that insist upon so hot a berth. The air should always be soft, and nearly saturated with moisture. The latter should, however, be prevented from dripping upon the plants as it condenses; and this is easily effected by fixing a small copper pipe, or piece of channelled wood, under each rafter and sash-bar, to catch and carry off the water.

6th. Do not over-water.

This a beginner is very apt to do, and a grievous fault it is. When plants do not shrivel or flag, it is a sign that they are content with the humidity that the atmosphere of the house supplies. When watering is necessary, it should not be done indiscriminately, but according to the wants of particular plants. It is also of great importance to use rain-water only, which may be collected for the purpose in a tank, as shown in the plan of Mr. Rucker's house, and which should not be applied of a temperature below 60°. Syringing in moderation may be had recourse to in hot weather. Some of the *Sobralias*, together with *Bromheadia palustris*, grow more vigorously if their pots are set in saucers of water during the summer months.

To the foregoing rules the following advice may be added:—Do not aim at having too large a collection, but rather strive to grow a few good kinds in the best style.

GROWING BALSAMS TO GREAT PERFECTION.

BY AN ATTENTIVE PRACTITIONER.

BALSAMS being general favourites, and grown in almost every cottage window, I beg to submit to their admirers a system for very much improving their flowering. I sow the seed in March, pot singly into small sixty-pots, and when the plants begin to show bloom-buds I select the best, rejecting all the inferior, and with a pair of grape scissors clip off all the blooming flowers and far advanced buds, being careful to cut them off close to the flowers or buds, thereby leaving as much of the flower-stalk to the plant as possible. I then shift them into larger pots, and place them in their former situation. By these means the plants throw up their lower branches to great perfection. If the flowers are allowed to remain on the plants as they appear, they injure their growth, and still remain separate; and, being hid by the leaves, are prevented from being seen to advantage. If my method be adopted, the plants will require shifting again in a fortnight, only then clipping off the flowers, but leaving the buds, and in a short time they will be entirely covered with one complete mass of flowers, for where the flowers were clipped off they will throw out three for one; the plants also grow double the strength of those treated in the usual way. To prolong the flowering season, I take off both seed-vessels and flowers as soon as they begin to fade. Thus new flowers are produced in succession for a considerable time.

SUCCESSFUL TREATMENT OF SALVIA SPLENDENS.

BY MR. THOMAS WILLIAMS, OF SION LODGE, LIVERPOOL.

THE brilliant *scarlet* flowers of this *Salvia* are exceedingly ornamental, but it is rarely grown as its capabilities admit, and having succeeded with it very far beyond what I have seen elsewhere, I forward the details of treatment.

I put in the cuttings in May, three or four round the edge of a six-inch pot; as soon as they are rooted, I pot them into pots of about the same size as those they were taken from. When these are filled with roots, they are then shifted into the pots they are intended to flower in. All that the plants afterwards require is plenty of water, with some liquid manure occasionally. When they are in their flowering pots, they should be grown in the greenhouse, and their tops should be *pinched off frequently*, but not later than August, or the bloom will be deficient. This plant is not particular as to soil; loam, leaf-mould, and sand suit it well, with a liberal drainage, to admit surplus water freely to pass off. Treated in this manner I produce bushy plants, from six to eight feet high, which bloom profusely from the end of October to Christmas. In places where it is required to keep the conservatory or sitting-room gay, during the time I have specified, this showy Sage will be found exceedingly useful.

This *Salvia* is readily formed into a tree-like form, similar to a standard rose, by training a principal trunk and rubbing off the side-shoots till it is high enough; then by stopping the lead, a fine head will soon be produced, and be easily shaped into a desirable form. The *Salvia speciosa* (or *pulchella* of some) is of much less size; by stopping the shoots it forms a neat dwarf bushy plant, and blooms very freely. The flowers are a brilliant scarlet colour, very handsome through winter and spring, and ought to be in every greenhouse. The *Salvia gesneriflora* is also a most valuable winter flowering plant. Its large spikes of brilliant scarlet flowers are exceedingly ornamental during the first three months of the year. I treat them as follows with admirable success. I strike cuttings in autumn, pot them into sixties, in which they are kept in a dry cool pit from frost. As soon as danger from frost is past I turn them out of pots into the open ground, where they have scope for growth, and before frost in autumn I take them up with a ball of soil and pot them into suitable sized pots, place them in the greenhouse, and duly treated they bloom magnificently at the above period of winter. These autumn-struck plants make large specimens; but strike cuttings in April, and plant them in the open border, then take up and pot at the end of sutumn, such will be dwarf ones.

FLORA OF SUMATRA.

In order to account for my not having before thanked you for the papers, I must tell you that I have been for several weeks exploring for coal in the interior of Sumatra. As my time was not my own, I was unable to collect much, and could dry no specimens, except a few of the beautiful little *Lichens* and *Hepaticæ*, growing parasitically on leaves. How many species I send you I do not know; they seem to me almost innumerable, and many may probably be new. I send you also a lot of seeds, among which are those of three *Palms*, as they appeared perfectly ripe; I hope they may grow. I send also the fruit of the gum-benjamin tree, and one of the Shiklar trees, for this last article is found on several species.

Among the seeds are two very handsome *Cucurbitaceæ*, with brilliant scarlet fruit, and a very ornamental, small-flowered, yellow *Ipomæa;* possibly they may none of them be new, and perhaps even may be worthless, but it was better to send all than none, when I was making up a parcel; and I had one thing to send which I really think is very curious, as an instance of the instinct which teaches man to seek certain stimulants wherever he is, independently of what is taught him by others.

In going up the river Chenaku, I saw everywhere *Coffee* planted about the houses, and in every case the fruit dropping and decaying on the ground; upon inquiring, I found these people drank an infusion of the leaves, and entirely neglected the berries. I was very anxious to taste this, and see it prepared, and luckily had an opportunity of doing so. A number of the young twigs of the plant were gathered, with their leaves, and after being cut to about a foot in length, were placed closely together between two strips of bamboo, tied at the ends so as to form a dense disk of green leaves, about eighteen or twenty inches in diameter. This was then held over a clear blazing fire (the ends of the bamboo serving for a handle) until the leaves were of a rich brownish-green colour, and perfectly crisp and brittle; the latter part of this process requires some care, as, when nearly dry, the leaves are almost as inflammable as gunpowder, and if once they catch the flame the whole is consumed in a moment. When dry, the leaves are pounded, by crushing in the hand to the state of the specimen sent you, which I got prepared for your museum, before my eyes. The powder of the leaves is infused in boiling water, exactly like tea, though in much larger quantities; it produces a dark brown liquid, looking like coffee, smelling like green tea, and certainly tasting very much like a mixture of the two; it is very pleasant, however, and refreshing, after a hard day in the sun, and I can understand these people being passionately fond of it, as they certainly are. The curious part of it is that, while *Theine*, *Caffeine*, and *Theobromine* have been found (nearly identical as they are in composition and properties) in use in three distinct parts of the world, and valued for the same exhilarating qualities, here is a people little raised above savages using also in an independent manner one of these very plants, being evidently uninstructed, as otherwise they would certainly have used the berry, as their teachers did, finding out for themselves its qualities and uses.

I saw in my trip up these rivers a great number of interesting plants, including many *Palms;* how very numerous must this splendid family be here. With very few exceptions, those seen were all different from my old acquaintances at Labuan; a good many of them, two of whose seeds I send, were very slender and elegant rattans. I saw many eatable fruits new to me, of which species of *Nephelium* were very abundant, as also *Meliaceous* plants, allied to the Lansat, one of the most delicious of fruits. The *Durian* is here in almost incredible quantities, forming in the season certainly by far the largest proportion of the food of the natives; the quantity they eat of it is perfectly astounding. Among other things worth notice, I observed a Fern very frequently proliferous from the axils of the pinnæ of its fronds; I send two or three specimens of such as I could preserve, but I had only a note-book of small dimensions to dry them in.—*Hooker's Journal of Botany.*

AN IMPROVED MODE OF PROPAGATING CARNATIONS, WALLFLOWERS, Etc.

BY A FLORIST.

In propagating Carnations by the usual method of layers, I have found the shoots very liable to be broken off, therefore adopted a different plan, which I have found to succeed beyond my expectation. It is, however, a simplification of the common method. At the usual time, I take those pots of plants I intend to operate upon, and fit them into pots of a *larger size*, so that the upper edge of the former is about an inch *below* that of the latter. I then clear away the surface mould from under the leaves of the plant, and having tied up the grass with a piece of bass matting to a stake, I take a penknife, and introducing my finger at the back of each grass *seriatim*, I make a slit upwards about an inch in length, and as near the root as possible, directing the knife by the finger at the back of the shoot. The grass being tied up, causes the talus (the part slit) to protrude a little. The double pot is then filled with compost, care being taken to shake it well down betwixt the sides of the outer and inner pot, in order to fix them so that the incisions are covered about half an inch deep. I practise this plan for border Carnations, double Wallflowers, etc., for each of which it succeeds equally well. It is, besides, a much more expeditious method, and I doubt not but I should be able to dress half a dozen plants in this way in the same time that would be required to dress one in the way which is generally pursued.

NOTES ON NEW AND SELECT PLANTS.

59. **Cuphea eminens.** Nat. Ord. *Lythraceæ.*—One of the most remarkable of this pretty genus. It is a robust, half-shrubby plant, with straight stems, growing about eighteen inches high, furnished towards the base with numerous lanceolate leaves, resembling the Peach, and terminating in a compact spike of flowers, which are the calices, and of a brilliant red striped with orange-yellow. Notwithstanding the absence of petals in this species, it is a very ornamental greenhouse plant, and no doubt will also flourish in the open bed, in summer. Its native country is Mexico, from whence it was sent by M. Ghiesbreght. (*Lind. Cat. Plant, Exot.* 5.)

60. **Gonocalyx pulcher.** Nat. Ord. *Vaccineæ.*—A charming frutescent plant, with bushy branches, covered with dense foliage. The flowers are tubular, of a bright red, numerously scattered among the foliage. The leaves are small, almost round, and somewhat resemble those of the *Rhamnus Alaternus.* The young branches as well as the young leaves are tinged with a pretty rosy purple. It was discovered, along with *Calyptraria hæmantha,* in the provinces of Pamplona and Ocana, by M. Schlim, where it is a bush, growing at the altitude of 7000 feet. (*Lind. Cat. Plant. Exot.* 5.)

61. **Lamourouxia grandiflora.**—This is a magnificent variety of *L. multifida*, with swelling tubular corollas two and a half inches in length, of a bright velvety scarlet. The leaves are small, pinnatifid, with linear segments. This is one of the numerous introductions

of M. Ghiesbreght, from the State of Michoacan. It only requires the temperature of a cool greenhouse. (*Lind. Cat. Plant. Exot.* 6.)

62. LAMOUROUXIA RHINANTIFOLIA.—This differs from the preceding by its membranous leaves, resembling those of *Rhinanthus crista-galli*, by its larger flowers, and long footstalks of a pretty purple. It was discovered in the same locality as the last-named species. (*Lind. Cat. Plant. Exot.* 6.)

63. LOASA SCHLIMII. Nat. Ord. *Loasaceæ.*—This remarkable species inhabits the cold regions of Sierra Nevada de Santa Martha, from whence plants were sent to M. Linden, of Brussels, by M. Schlim. When planted in the open air it acquires a large and vigorous growth. The flowers are of considerable size, yellow, with an orange-red nectary. The tall and elegant habit of this species makes it a desirable acquisition for training against trellis-work in the open air. (*Lind. Cat. Plant. Exot.* 6.)

64. MONOCHŒTUM ENSIFERUM.—A small bushy shrub, of an elegant habit. The leaves are thick, lanceolate, and glabrous beneath. The petioles and young branches are red; the flowers large, of a bright rose. Introduced by M. Ghiesbreght, from Mexico. (*Lind. Cat. Plant. Exot.* 6.)

65. SCUTELLARIA TRIANAEI. Nat. Ord. *Labiatæ.*—A charming species with violet-crimson flowers, the lower lip of which is very large. The leaves smooth, oval. M. Triana sent this species to Europe, from the province of Bogota. (*Lind. Cat. Plant. Exot.* 6.)

66. SCUTELLARIA SCARLATINA. Nat. Ord. *Labiatæ.*—Another handsome species, with flowers of a brilliant scarlet, and pubescent leaves. Introduced by M. Triana, from the province of Popyan. (*Lind. Cat. Plant. Exot.* 6.)

67. SIPHOCAMPYLUS PULCHELLUS. Nat. Ord. *Lobeliaceæ.*—A very desirable species, of great delicacy of texture and colour. The leaves are numerous, oblong, ovate, irregularly dentate. The flowers are axillary, with the footstalks much shorter than the leaves; corolla tubular and narrow, of a violet-red, the lower lip rosy blush; the stamens and style are very projecting. Introduced by M. Schlim, from the province of Ocana. (*Lind. Cat. Plant. Exot.* 7.)

68. TROPÆOLUM CHRYSANTHUM. Nat. Ord. *Tropæolaceæ.*—Related to *T. crenatiflorum*, but totally distinct from all others. The leaves are of a bright green, with a purplish tinge beneath. The flowers are bright yellow, the spur green towards the summit; the petals are dentate. It is a climbing plant, from the cold parts of the province of Bogota. (*Lind. Cat. Plant. Exot.* 7.)

69. BEGONIA NATALENSIS. Nat. Ord. *Begoniaceæ.*—Captain Garden introduced this species to Kew Gardens, from Natal, South Africa. Although not of brilliant colour, it is an abundant bloomer, and from its being in profuse flower during the months of November and December, is a desirable plant to adorn the stove or warm greenhouse. The flowers are nearly white, with a tinge of blush,

one inch in diameter; anthers deep yellow. Leaves dull green, slightly marked with whitish spots. The root is a globose tuber. (*Bot. Mag.* 4841.)

70. Albuca (?) Gardeni. Nat. Ord. *Asphodeleæ.*—Another of Captain Garden's introductions, from Natal. Sir W. Hooker has only provisionally placed this with the *Albucas.* It is a plant of little beauty, the flowers being small, and produced in a spike of a greenish white. (*Bot. Mag.* 4842.)

71. Chamædorea elegans (mas). Nat Ord. *Palmaceæ.*—In general habit it resembles *C. gracilis.* It blooms in the winter and spring months. Being of the Palm tribe, which, although a very interesting family, are not generally cultivated, we need add nothing farther respecting it. (*Bot. Mag.* 4845.)

72. Berberis Bealii; var. *planifolia.* Nat. Ord. *Berberideæ.* Mr. Fortune sent this beautiful shrub to Messrs. Standish and Noble, from China, where he discovered it growing in a district considerably to the north of Shanghi; it is therefore perfectly hardy, indeed it has stood out during the late severe winter unharmed. The flowers are pale yellow, produced in a branching terminal raceme; blooms in March and April. The leaves vary much in size, some being a foot in length, and six inches broad, composed of several pairs of leaflets. (*Bot. Mag.* 4846.)

73. Tecoma spectabilis. Nat. Ord. *Bignoniaceæ.*—M. Schlim discovered this remarkably handsome species on the Andes of New Granada, growing at an altitude of from nine to ten thousand feet. It is a small but vigorous *shrubby plant.* The leaves are very large, being two feet or more across. The flowers are produced in *terminal cymes,* and form noble *corymbous heads.* Each blossom is three inches long, and of a handsome yellow colour. It is one of the finest plants that has been introduced for many years, and merits a place in every conservatory and greenhouse. The elegance of its noble foliage and its numerous beautiful flowers alike contribute to render it ornamental. Probably this fine plant will flourish out-doors in warm situations, growing in so *high* a situation where discovered. (*Lind. Cat. Plant. Exot.* 10.)

74. Garcinia Mangosteen. Nat. Ord. *Guttiferæ.*—This charming tree is a native of the Molucca Islands, but its cultivation as a *fruit-bearing tree* has extended to the Malay Archipelago, where, it is stated, it grows to the height of twenty feet, and becomes a noble branching tree. The leaves are six to eight inches long, thick, leathery, glossy, and in appearance like an oblong elliptical-shaped leaf of a Magnolia. The flowers are produced singly at the end of the shoots, in shape like a peach blossom, thick petals, and about two inches across, of a dullish red colour. The fruit is large, globe-shaped, three inches in diameter, of a rich purple colour tinged with brown and orange, and exuding yellow drops of juice.

It is well known that the late Duke of Northumberland encouraged the cultivation of tropical fruits, built stoves especially for them and was eminently successful, witness the ripening of the Chocolate, Nutmeg, Cloves, Vanilla, etc.; and now the *Mangosteen* has borne flowers and ripened its beautiful fruit. Sir William Hooker, having received a fruit, states that the eatable part is the pulp of its cells. and these separate easily from each other like the cells of an orange, The flavour was delicious, and compared by some who partook of it to that of a first-rate peach and of a good grape. It is perfectly wholesome, and may be eaten in any desired quantity. In the stoves in this country the plant has not yet attained a greater height than ten to twelve feet. The fruit when young is of a reddish-green colour; when ripe, of a reddish-brown and orange; and when old, of a chestnut-brown and purple.

Fruit of it has been recently presented to Her Majesty; also exhibited at the Horticultural Society's Meeting, in the grounds of Gore House, on the 16th of May, and some are sent to the Great Exhibition at Paris. The *Mangosteen* has never before borne either blossoms or fruit in Europe. (*Bot. Mag.* 4847.)

75. **Begonia urophylla.** Nat. Ord. *Begoniaceæ.*—This species was introduced to the Royal Gardens at Kew, from Belgium. The leaves are heart-shaped, about ten inches across. The plant is stemless, and the floral stems spring from the crown of the roots. The flowers are produced in large panicles, having two sorts of flowers; *male* large, *female* small; there being two of each. Male blossoms are white, slightly tinged. It grows freely, and blooms profusely in the spring months. (*Bot. Mag.* 4855.)

76. **Canna Warszewiczii.** Nat. Ord. *Cannaceæ.*—This superb *Canna* was introduced into Germany, by M. Warszewicz, from Costa Rica. The root is perennial. The stem, which rises from three to four feet high, is of a dark blood-red, and primrose. Leaves a foot long and six inches across, deep green, with the midrib and veins of a rich red. The corolla is of a bright scarlet, with a bluish tinge on the outside, and the blossoms *large*, produced in five terminal open spikes, each having from eight to a dozen flowers. It highly merits a place in every stove or warm greenhouse. In the German gardens this *Canna* is grown during summer in the open borders, where it flourishes and blooms very freely. It succeeds well, too, in a dwelling-room window. (*Bot. Mag.* 4854.)

77. **Embothrium coccineum.** Nat. Ord. *Proteaceæ.*—It is a handsome evergreen shrub from South America, supposed to prove quite hardy in our own country; at all events, it will flourish in the greenhouse. It forms a branching shrub, a few feet high; the branches are brown; the leaves about two and and a half inches long, and nearly one across. It blooms very freely; the flowers are borne in terminal large racemes, each having from twenty to thirty blossoms, which are tube-shaped, and before opening are about two inches long, the end then divides into four curled segments. The flowers are of a bright scarlet, and the entire heads are like so many of a superb Honeysuckle. It is a charming plant, highly meriting a

place in every greenhouse and garden. Mr. Lobb sent plants of it to Messrs. Veitch, of Exeter and Chelsea Nurseries. (*Figured in Bot. Mag.* 4856.)

78. **TRICHOPILIA COCCINEA.** Nat. Ord. *Orchideæ.*—M. Warszewicz discovered this very handsome stove orchid in Central America. It has recently bloomed in Mr. Rucker's collection at Wandsworth. The flower-stalks rise but a few inches high, but each generally bears three flowers; they are from four to five inches across; petals and sepals lance-shaped, creamy-white outside, of a bright red-purple inside, edged with white. *Labellum* large, like a Gloxinia flower in form, the outside a creamy-white, inside a rich carmine-crimson tinged with purple. It is exceedingly handsome and ornamental. (*Bot. Mag.* 4857.)

79. **SABBATIA CAMPESTRIS.** Nat. Ord. *Gentianaceæ.*—From North America. It is one of the present year's *New Hardy Annuals*, but by cutting down early, it becomes perennial. The flowers are produced in terminal, branching, corymbous heads. Each blossom is in appearance like our English Corn Cockle, an inch and a half across, of a lively rose colour, with a yellow eye. It grows two feet high; very pretty.

80. **GLOXINIA DON PEDRO.**—A charming variety of the *G. Fyfiana* section (upright flowers), raised in the establishment of M. Van Houtte. The blossoms are large, two and a half inches across the mouth, of good substance, and the margin very even. The outside of the flower is white, the top limb is also white tinged with pink, around the mouth it is a rich carmine-crimson, and the inside of the tube white, beautifully dotted with carmine.

81. **G. DUC D'OPORTO.**—Another very handsome hybrid raised by M. Van Houtte, of the same erect section. The blossom is large, three inches across the top; the margin is not so even as the one above described. The flower is white outside, the mouth of a reddish-purple, the limb (flat portion of the top) is blue, with a white edging. It is very handsome.

82. **TROPÆOLUMS.**—The following hybrids have recently been raised in the continental gardens, they belong to the section of *T. Lobbianum*, *Moritzianum*, etc.

83. **TRIOMPHE DU PRADO.**—Each flower is about one and a half inch across, of a primrose-yellow, with five spots of a bright vermilion colour, one on each lobe of the face of the blossom.

84. **MASSILIENSE.**—Each flower one and a half inch across, of a deep orange-yellow, with five deep red spots, and a green centre throat; the blossom of neat form.

85. **CHAIXIANUM.**—Each flower one and a quarter inch across, of a deep blood-purple, with a yellow centre throat; blossom very neat form.

86. **NAUDINII.**—Each flower two inches across, of a deep orange colour, some of which have five carmine spots, whilst others are striped with similar colours.

87. Lobbianum tricolor.—Each flower an inch across, of a *brilliant red* colour, with five *blue* spots and a yellow throat; very neat form.

These handsome varieties are a valuable acquisition to this section of *Tropæolums*, and very ornamental for the greenhouse, during the winter and spring months; similar to the *Lobbianum* and *Triomphe de Gand.* They are easy of cultivation, and bloom very profusely. M. Van Houtte possesses these varieties, and has figured them in the *Flor. des Serres.* They merit a place in every greenhouse, forcing-house, or dwelling-room window.

88. Streptocarpus.—New species from Natal; the flowers are borne in a *spike*, large, and of a beautiful light blue. Its numerous flowers render it a very ornamental plant. The spikes rise a foot high.

89. Arctotis grandiflora.—Very similar in habit to the *Gazanias.* It grows a foot high, and blooms very freely. The blossoms are about four inches across, of a fine orange colour, and in appearance like a single-flowered Dahlia. It does well either in the greenhouse or open bed in summer.

90. Tradescantia Martenscana.—A native of Mexico, a spreading prostrate-growing plant; the flowers are borne in large terminal branching panicles, white, each blossom about half an inch across, having a powerful fragrance similar to violets. It is in the stove at the Royal Gardens at Kew. (*Bot. Mag.* 4849.)

91. Streptocarpus polyanthus (*Many flowered*). Nat. Ord. *Cyrtandraceæ.*—Sent from Natal by Captain Garden, to the Royal Gardens at Kew Leaves nearly a foot long, lay close to the ground. The flowers are produced in panicles, which rise about a foot high, each having from ten to fifteen flowers. Each blossom is an inch and a half across, of a delicate pale blue, veined with a darker blue. It is very pretty. (*Bot. Mag.* 4850.)

92. Thyrsacanthus Schomburgkianus. Nat. Ord. *Acanthaceæ.* Syn. *T. rutilans.*—A native of South America; a stove plant, and a fine one for *winter flowering.* It produces *great quantities* of brilliant crimson, tube-shaped flowers, each blossom nearly two inches long. The plant grows from two to three feet long, branching, and twiggy. Flowers borne in axillary and terminal racemes, one to two feet long, and so numerously, that the *drooping racemes* produce a highly ornamental and beautiful appearance. It ought to be grown in every stove and warm greenhouse. (*Bot. Mag.* 4851.)

Petunias.—The following six hybrids have been raised on the Continent, and are figured in M. Verschaffelt's *Illustre Horticole.*

93. Aurora.—Flower large, a mulberry colour, with a broad edging (margin) of green.

94. Anna Paulowna.—Flower large, the *tube* blue, tinged with violet, the rest of the blossom a bright green.

95. Belle de Jour.—Flower of good substance and good outline, a rich crimson, with a very distinct green edging; very handsome.

96. **Dr. Würth.**—Tube purple, the spreading limb (front) blue, edged with green.

97. **Ermesinde.**—Flower medium size, good substance and form; deep rose, with a narrow and very distinct edging of green.

98. **Fioretta.**—Flower medium size, good substance and form; tube purple, face rich rosy crimson, with a very distinct edging of sulphur-green; a beautiful variety.

The whole are very distinct and handsome, and well entitled to a place in every greenhouse, pit frame, or flower garden, a bed of each, or the six kinds grown in a circular bed in rings, would be very pretty. Plants may be procured, at a reasonable price, of M. Verschaffelt, through the order of any nurseryman in England.

Achimenes.—The following beautiful hybrids are also in M: Verschaffelt's establishment.

99. **Edward Otto.**—A seedling from *Triverania coccinea* impregnated with *Achimenes fimbriata* (*gloxiniæflora* of some). The flowers are an inch and a half across the front, of a bright rosy red, the inside of the tube white and yellow, beautifully spotted; very neat.

100. **A. Dr. Hopf.**—Flowers two inches across, white, with a rosy pink band round the yellow throat, surrounded with dark veins; tube pale orange; blossom fine form.

101. **A. Edmond Boissier.**—A seedling between *A. Bæckmanni* and *Jauregu ia;* flowers of good form and substance, white, with a *yellow* throat, surrounded with *blue* netted veins; very pretty.

MISCELLANEOUS.

Horticultural Fete, held at the Crystal Palace, Sydenham, *June 2nd*, 1855.—This was the first exhibition of *Flowers*, *Fruits*, and *Plants* held in this unrivalled structure. The number of collections placed for competition was immense, manifold more than we ever saw at any of the great exhibitions at Chiswick and the Botanic Gardens, Regent's Park, and though arranged in three or more rows deep, the extent of lines, it is stated, was upwards of one mile in length. They were almost universally well arranged to produce a striking effect, in being viewed to the best advantage, and at the same time an ample space was allowed for the vast number of visitors (said to be upwards of thirty thousand) carefully to inspect the entire, without crowding at any one place. The *sloping banks* of specimens comprised nearly 90 yards *length* of *Orchids; Stove* and *Greenhouse* plants about 250 yards; *Pelargoniums*, 60 yards; *Cape Heaths*, 70 yards; *Fuchsias*, 15 yards; Greenhouse *Azaleas*, 34 yards; *Calceolarias*, 25 yards; *Ferns* and *Lycopods*, 14 yards; *plants remarkable for handsome foliage*, 30 yards; besides a *considerable extent* of cut specimens and other miscellaneous productions. Our readers will thus be able to form some idea of the extent of the MAGNIFICENT COLLECTION EXHIBITED. *Vast* and *superb* as it was, we are aware many excellent plant and fruit growers hesitated to send first-rate productions, under the impression that in so vast an assemblage as would be brought together, encouraged by the *very liberal* prizes, in the whole amounting to £1000, they would be distanced, and had better, for the *first exhibition*, keep back and ascertain the probabilities of success in future. We feel confident that at the next Fête of this nature there will be *double* the quantity of specimens that were shown on this occasion. The entire arrangement was most admirably effective, and gave but another proof of the gardening abilities of the principal director thereof, SIR JOSEPH PAXTON, M.P., and if in any minor matters there was room for an improvement, we are confident that Sir Joseph will have perceived such, and his genius will prevent a repetition of anything objectionable. The persuasion that the *exhibition and arrangements of the garden productions* would please *every visitor* was not entertained even by the Director of it, but we have much pleasure in testifying that though we heard the opinion of a great number of persons most likely to judge thereof, only one fault-finder's testimony was forthcoming. The day was exceedingly fine, and the gardens and terraces were the resort of the extraordinary assemblage of persons, enchanted with the *beautiful* and *extensive landscape* there so clearly seen, almost to an unlimited distance. The FOUNTAINS that are completed, vast in number, played on the occasion, and were the admiration of all beholders, and called forth their reiterated applause. We conversed with many who had come from the remotest parts of our own country, as well as from continental countries, having paid their one guinea, besides other incidental expenses, and their uniform testimony was that they were highly gratified, and most amply compensated for their journeys. If the ticket had only procured admission on this occasion it would have been worth far more than its price to every lover of horticulture, in enabling him to witness such a *magnificent* display, but when, in addition, it entitles its possessor to an entrance each day the public are admitted into the building, we cannot but be astonished that a greater number of persons residing at a reasonable distance from the Palace, and to whom the cost would be trifling, have not availed themselves of the opportunity to become yearly subscribers. A very important improvement on previous systems of exhibiting plants was here for the first time in this country adopted, viz., to offer prizes for PLANTS GROUPED FOR EFFECT, IN OR OUT OF FLOWER. Four prizes were competed for, viz., £30, £15, £10, and £7, with collections of thirty *stove and greenhouse plants;* these collections were arranged on stages similar to those adopted at Chiswick and Regent's Park; they consist of seven shelves, three on each side the top centre one, thus supplying a front *south* and *north*, and covered with *pale green* glazed calico, which gives a greater relief than a *dark green*. All the collections shown were shaded over with white canvas. We have only space to give the particulars of the *best specimens* and *collections;* to detail all would occupy the whole of our present month's number.

NEW OR RARE PLANTS.—Mr. Veitch exhibited *Rhododendron Brookeanum*, obtained from Borneo, and named in compliment to Sir James Brooke. It is a vigorous plant, with bright glossy-green *Oleander-like* leaves, and the flowers of *thick substance*, each about an inch and a quarter across, of a rich saffron-yellow colour; a charming acquisition. *Rhododendron californicum*, forms a neat bush, the fine flowers being of a pretty rosy pink colour. *Weigelia amabilis*, the flowers are much larger than those of *W. rosea*, and of a deeper rosy crimson colour. *Embothrium coccineum*, a handsome shrub, which trained to a wall proves quite hardy, having stood out four winters uninjured. The flowers are borne in terminal large corymbous racemes, in form somewhat like a honeysuckle, of a crimson-scarlet colour. It is a profuse bloomer, and very ornamental, worth a place in every garden, or cool greenhouse. Messrs. Rollison showed a most lovely shrubby stove plant, *Meyænia erecta*. It is a stiff-growing plant, with small foliage and a *profusion* of flowers. The blossoms are in form between a *Thunbergia* and *Achimenes*, each about two and a half inches across the front, of a rich deep violet colour, with an orange throat to the tubular portion. It belongs to the group of Thunbergias, and merits a place in every stove or warm greenhouse. Messrs. Standish and Noble had *Spirea grandiflora*, a charming hardy shrub, with a profusion of large white flowers. Mr. Ayres, gardener to Lord Southampton, had *Hydrolea azurea*. It is what is usually called a soft-wooded greenhouse plant, of neat habit, small leaves, and blooms freely. The flowers are nearly an inch across, of a handsome sky-blue colour, with golden anthers. One of the prettiest plants for the greenhouse, and ought to be in every one. *Thirty stove and greenhouse plants, grouped for effect, in or out of flower.* First prize £30, to Messrs. Rollison, for the following: on the top shelf an *Araucaria excelsa glauca*, ten feet high, and a *Ropala corcovadensis* of similar height, with a pyramidal *Erica Sindryana* between them. In front of these were *Nepenthes distillatoria*, loaded with pitchers, *Cissus discolor*, clothed with foliage of remarkable beauty, and between them *Oncidium* *flexuosum;* while on the front or bottom shelf were *Platycerium grande* mounted on inverted pots (which, however, would have looked better had they been hid among moss or Lycopods), and on one side of it was *Aphelexis macrantha purpurea*, and on the other, *Erica ventricosa magnifica*, one of the very best of the class to which it belongs. On the left side of this centre piece were *Gardenia Fortuni*, with white flowers, large and double, and emitting a most delicious perfume; *Angiopteris erecta*, and *Nephrolepis davallioides; a purple-coloured Azalea*, a *yellow Heath* (*depressa*), two variegated Screw-Pines (*Pandanus*), the scarce *Nepenthes lævis*, *Erica elegans*, *Lycopodium stoloniferum*, the rose-flowered *Adenandra fragrans*, and *Caladium pictum;* while on the right side were the Box and Oleander-leaved *Eriostemons*, *Philodendron pertusum*, *Polygala oppositifolia* (not in flower), a *yellow Heath* (*Cavendish*), a variegated *Screw-Pine* (*Erica Westphalingia*), *Caladium hæmatostigma*, a species with leaves spotted with red, and *Dendrobium nobile*. The two sides of this group *gradually fell from the centre to the extremities*, and it will at once be seen that they were nicely balanced as regards colour. (*To be Continued.*)

The Chinese Primrose.—What more useful flower have we than this? My greenhouse at the present time is as gay as it well can be with well-grown plants of all the best varieties of it. Some of my sorts, all of which I raise from seeds every year, have flowers which measure upwards of an inch and a half across, and in colour are of a deep glowing crimson. The beauty of a fine head of such blossoms may therefore be better imagined than described. Fine blooming plants of the Chinese Primrose, that will continue in flower through the whole of the winter months, may be produced as follows:—In order to obtain strong plants, the seed should be sown not later than the 1st of May, in a well-drained store pan, in a light sandy soil, and put into a cool frame, as near the glass as possible. When large enough to be pricked off into store pans, the young seedlings should be allowed a square inch between each plant; when that space has been filled, let them be potted singly into three-inch pots, and as the pots become filled with roots, shift into a size larger pot, giving them their final shift into six-inch pots in the early part of September. The compost in which I have found these plants to thrive best has been equal parts turfy loam and leaf-mould, and a little sharp sand. While growing, a cool pit or frame suits them best; give plenty of air, and be careful not to over-water them. Treated in this way the plants will be in flower by the middle of November, and will continue in blossom through the winter and spring.—*A Practical Gardener.*

Gesnera Zebrina.—The capabilities of this splendid and useful plant for winter blooming are not generally known and appreciated; indeed, with a little care, masses of this rich velvety-leaved plant may be had in perfection when other flowers are scarce, and in a warm conservatory all the winter. It will succeed admirably under the following treatment. About the middle of February plant the scaly bulbs singly in three-inch pots, in a compost of two parts fibry peat, one part turfy loam, and one part charcoal and silver sand, incorporating the whole well together. Place them in a frame or pit in a gentle bottom-heat, and when the atmospheric heat is about 60°. When the plants have reached between two and three inches in height they may be transferred at once to the pots in which they are intended to flower. Collect the desired number of fourteen-inch pots, taking care to secure good drainage by using plenty of crocks and charcoal, and employing the compost as before, only in as rough a state now as possible. Place five plants in each fourteen-inch pot; but, for the sake of variety and convenience for the drawing room, etc., some may be planted singly in nine-inch pots. When the operation of potting is completed, rearrange as before, watering well to settle the soil about the roots of the plants; afterwards a sprinkling will be sufficient for some time, shutting up early in the afternoon. A slight shading will also be necessary in bright sunshine. As the plants advance in growth they will require more water, and occasionally weak manure-water may be used, particularly when they show signs of blooming; they will also require to be staked; and when five are in a pot, to be tied out, in order to make fine specimens. As they come into bloom they should be removed to the conservatory, which will require to be kept rather close for a few days. Afterwards more air can be given; but always avoid cold currents. The following plan, which is simpler, I have found to succeed equally as well as the above. Start the bulbs in pans, and after they have attained the proper size, plant and treat them in every respect as before. By putting in a succession a month later, these early plants can be had in full flower all the winter; and indeed I may say all the year. After they have done flowering, and the leaves have begun to shrivel, they may be gradually dried off and allowed a season of rest.—*J. Russell* (*Gardeners' Chronicle*).

BRIEF REMARKS, &c.

Brachycome iberidifolia flowers freely in the open border, but is impatient of wet; at the latter end of the season it may be lifted, and being carefully potted, may be placed in the greenhouse, where it will continue to bloom beautifully. There are many varieties of it, differing in colour and size, particularly a lilac and white, and in these the flowers differ much according to their age; but there are varieties of it of every shade of blue and lustrous lilac, with considerable diversity in the shape and size of the flower-heads.

On the Application of Charcoal in the Soil in which Pelargoniums are growing.—In the early part of last spring I saw an article in the *Cabinet* recommending bits of charcoal to be mixed in compost used in pot culture of plants. Having a quantity of young Pelargoniums to pot, I adopted the plan by sprinkling about one-eighth with the rich turfy loam and vegetable soil, and, having a free drainage, nothing can exceed the deep green beauty and vigour of the plants at this time.—*An Amateur.*

Of the marks that distinguish species, or that indicate the existence of a specific power in plants specifically distinct, the principal are, difference in form, proportion, magnitude, colour, taste, smell, duration, fertility, and time of reproduction; but as it has been found that specific differences depend more upon a difference of structure or form than upon any other perceptible difference, it is agreed therefore that a difference in form is the most eligible and sure mark of specific distinction.—*A Botanical Professor.*

Gentiana acaulis.—Last year attention was called in the Cabinet to this beautiful blue-flowering spring ornament, and it was recommended as an edging for walks. I procured a quantity at 3*d.* each, and planted the walks of a small flower garden with it, and ever since the middle of March it has been in profuse bloom. My soil is a sandy loam, in which it thrives well. As a successor to the Gentian when out of bloom, I had a quantity of what the Editor of the Cabinet advised as one for the edging of a flower-bed in summer, viz., *Lobelia erinus grandiflora*, and I planted a row of it close behind the Gentian, and now (May 18th) it is spreading among the same, and coming into bloom, and with its lovely blue and white spotted flowers, I doubt not, will be a pretty ornament to the autumn.—*Lucy, Cirencester.*

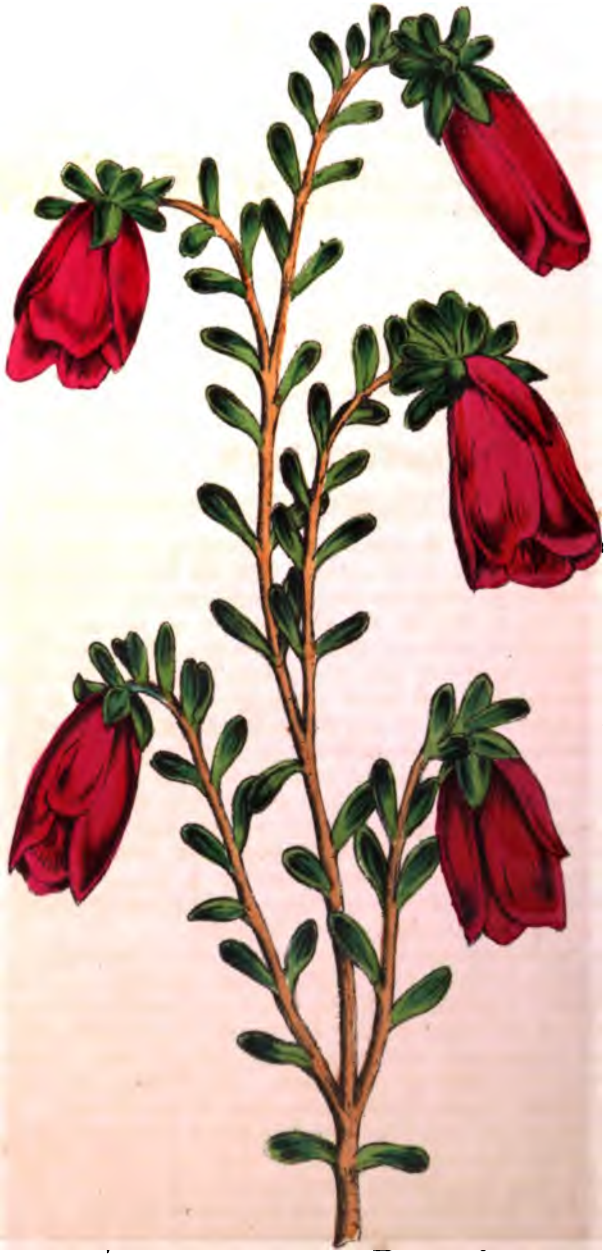
FLORAL OPERATIONS FOR JULY.

Flower Garden.—July is proverbially hot and dry; it will therefore be highly necessary, during the continuance of dry weather, to administer copious supplies of water. This should be done towards the evening of each day, because the plants have then time to absorb the water *gradually*, and appropriate such portion as contributes to their well-being. It is only in extreme cases that water should be given in the morning, because it is then so quickly exhaled from the soil, as well as the leaves, that its refreshing and nutrimental properties are almost wholly wasted. Rain-water is best, or that from an exposed pond or tank. Where beds of plants have been repeatedly watered through a rose, the surface of the soil will probably have become *crusted* and almost *impervious* to moisture; consequently they ought to be stirred over occasionally with a small fork. A few annuals, as *Mignionette*, etc., may now be sown to bloom in the autumn, also biennials to bloom next year.

Florists' Flowers.—*Auriculas* and *Polyanthus* should be kept in *the shade.* At this season of the year the plants are often attacked with green fly; dip the plants in a solution of tobacco-water. *Tulips* will have perfected their growth, and should now be taken up, as if allowed to remain too long it invariably acts prejudicially on the bulb. *Ranunculuses* will require to be taken up as soon as their foliage has become withered and dry. *Pinks* may still be piped. *Carnations* and *Picotees:* as the pods are fully formed and ready to open, secure them round with a ring of India-rubber, gutta-percha or bass, to prevent their bursting on one side. When blown, they should be shaded. Never suffer the plants to flag for want of water. Proceed with layering. *Dahlias* will require *thinning out* freely as they advance in growth. If sprinkled over-head with soft water late in the evening, with a fine rose or syringe, their luxuriance will be greatly promoted. *Pelargoniums* that have shed their flowers should be cut down, disrooted, and potted in smaller pots, keeping the plants for a week in a close frame, to assist them in developing their new shoots. *Roses* may now be budded, moist weather being best for the operation. It is of importance that there should be a resemblance between the bud and the stock as to the vigour of vegetative growth, in order to ensure a successful result. If a Rose of slow development is budded on a rampant brier, and all the strength of the latter is turned into the parasitical stranger, health cannot be maintained, nor will a freely vegetating Rose submit to be impeded in its progress by a sluggish stock. Thin away surplus branches from all stocks not budded, as early as possible, not to wait a day even, but get the branches strong and healthy.

FORCING STOVE.—Where stove and greenhouse plants afford suitable cutting, propagation must now be pursued; as, generally speaking, it can be practised with the greatest success in the *early* rather than the *later* part of the year. It should be remembered that the propagation of most plants is facilitated by the employment of *bottom-heat* and *bell-glasses*. Stove plants will derive great advantage from a partial shading during the glare of the day, and will be less liable to injury from drought. Many plants that will require shifting, such as *Justitias*, *Clerodendrons*, etc., give plenty of water at the roots, syringe daily, *in the evening*, and keep the floors of the house and every part damp, to assist in maintaining a humid atmosphere. Bulbs of *Amaryllis*, etc., should be put together in a pit or frame, where they will be near the glass, and where the influence of the sun, with a gradual diminution of water, will mature them. Never permitting the foliage to flag is a good criterion as to the quantity of moisture plants require; keep as near that state as possible. Repot *Achimenes*, *Gloxinias*, *Gesnerias*, etc.

GREENHOUSE, ETC.—As a free ingress of air must necessarily be permitted during fine weather, its rapid circulation, conjoined with active solar heat, must cause a rapid evaporation both from the plants and soil; hence there exists a necessity, under the above circumstances, of watering and syringing frequently. However beneficial a screen may be during bright hot sun, its presence is not required while the sun is obscured. Encourage the growth of *Azaleas* and *Camellias*, by keeping them comparatively close (with shade during sunshine), and supplying them liberally with moisture administered by the syringe. Propagate *Roses* by cuttings from those plants which have been forced, and place the plants in a rather *shady* situation, in order that they may have a period of *rest* for a few weeks. *Calceolarias* that have ceased blooming should be repotted; cut off dead tops; place the plants in a situation where they can be *shaded* from hot sun, admitting it morning and evening. Seed should be sown so as to have the plants strong, to endure winter; such will bloom next season, and be much more vigorous than plants raised from cuttings. *Cinerarias* also that have done blooming should have the tops cut off, be fumigated, in a close frame, as they are often affected with green fly; after which the plants should be turned out of the pots, and planted in a somewhat shady bed of good soil in the garden. Sow seed now; the young plants will bloom early next spring. *Epacrises*, *Ericas*, etc., now done blooming, may be cut in, to render them bushy. The tubers of *Tropæolums* which have ceased blooming, and the tops withered, must be taken out of the soil, or be kept in a bag, etc., or the pot must be put aside, where it may have the soil kept dry till potting time. Greenhouse plants placed in the open air in pots should have frequent waterings at the under side of the foliage, to destroy or keep down green fly. Moss laid lightly between the pots keeps the roots somewhat cool, and tends to promote the health of the plants. Occasionally water the moss, if the weather be hot and dry. A concrete floor, or one formed of lime rubbish or fine gravel, cemented together with gas tar, is essential to keep the worms out of the pots.



GENETYLLIS MACROSTEGIA.

The Floricultural Cabinet.

AUGUST, 1855.

ILLUSTRATION.

GENETYLLIS MACROSTEGIA (LARGE INVOLUCRED).

WE have frequently had the pleasure of recording the name of the VENERABLE DRUMMOND, in connection with the discovery of many of the most handsome flowering plants which have been introduced into our own country, and the one we figure in our present number is another beautiful acquisition thereto. During the excursions he made in Western Australia, into the interior of Swan River Settlement, he discovered two species of *Genetyllis*, of which he spoke in raptures, considering them among the most interesting and valuable of his discoveries. Subsequently seeds have been obtained, and plants bloomed in this country, which have fully borne out Mr. Drummond's eulogies. Some of our readers will recollect having seen and admired the plants which have recently been exhibited by Messrs. Backhouse, of York, at the Horticultural Society's Rooms, in Regent Street; and by Messrs. Garraway & Co., of Bristol, at the exhibitions held at Gore House Grounds and Chiswick Gardens, at which places they attracted universal attention.

Genetyllis macrostegia has by some been called *G. fuchsioides*. It is a *hardy greenhouse shrub*, having the general appearance of some of the *Pimeleas;* it grows about two feet high, much branched, and forms a neat, erect, bushy plant. It blooms in *profusion*, almost every branch terminating with a flower, as well as other blossoms springing from the sides of the shoots. The foliage has a very agreeable aromatic fragrance, similar to some of the *Diosmas*. The plant grows freely in a compost of good peat and silver sand, with a little charcoal intermixed, and a moderate supply of water, especially in winter; a liberal drainage too is essential: it also requires plenty of *light* and *air*. It continues in bloom for several months, and the more *hardy* it is treated, the brighter the colours of the flowers are. Persons unacquainted with the family of plants to which this belongs suppose the five outside parts of the flower to be the true *corolla*, whereas they are *floral leaves*, which shelter and conceal from view the real flowers, which are very small, and are collected inside at the base of the rich-coloured *involucre* of floral leaves. It is a charming shrubby plant for the greenhouse, of great beauty, and will ere long become a much cultivated favourite.

CULTURE OF GLOXINIAS.

BY A NOBLEMAN'S FLOWER GARDENER, IN DERBYSHIRE.

GLOXINIAS are now so greatly improved in merit as well as number, and have become such universal favourites, that I am induced to give the details of a most successful method of growing them. They are natives of tropical countries, where they are found growing in the woods and confines of dense forests, the black vegetable soil of which has been accumulating for ages, from the annual dropping of both leaves and bark. Moreover, they are subject to excessive rains, which are followed by the genial rays of the meridian sun; the exhalations caused thereby produce in a rapid manner the full development of their fine fleshy leaves, and lovely white, blue, and purple blossoms, in a manner almost in vain to be looked for in British stoves. Having a large collection of Gloxinias (between sixty and seventy species and varieties), during the winter I kept them quite green in leaf, in a small stove, where the heat seldom exceeded sixty degrees by day, and fifty degrees by night. In the beginning of March they were examined, shifting some, and surfacing others as they required, putting them into an increased temperature, where they flowered beautifully throughout the summer months, yet not equal to the specimens which my mind's eye has taught me to believe flourish in the humid groves of South America. Determined to imitate nature as far as possible, I commenced last autumn by *gradually decreasing the quantity of water*. In November about thirty of them were perfectly decayed, when we cleansed them from dead stems and leaves. They were afterwards placed in a pit along with some *Gesnerias*, all of which were covered a foot deep with decayed tan, where they remained till the middle of February, when I examined and found them all pushing through the soil in the pots. I then prepared the following compost for them, which was aired in the stove previous to use. Soil from the rotten stump of an oak-tree, quite decayed leaf-mould, sandy turfy heath-mould, and pure white sand, in equal parts, to which was added about one-fifth of light turfy loam, well incorporated, but not sifted. Over the drainage I put a layer of half-decayed leaf and stick mould; shaking the soil well from the plants, and potting them in pots from large thirty-twos to large sixteens, according as the plants were strong or weak; after potting they received a good watering, and were placed on a trellis over the flue in a forcing vinery, which ranged from 65 to 75 degrees Fahrenheit, watering very cautiously during the time the leaves were breaking through the soil, but keeping the flue moist by frequent waterings, and by placing two or three pans filled with water immediately on the flue, for the purpose of producing a humid atmosphere, resembling in some degree that of their own native habitats. As the leaves increased in size the watering was more frequent, also getting a dew-like shower, morning and evening, from a fine-rosed watering-pot, with water of the temperature of the house. I gave them once a week a watering with liquid manure, which increased their vigour very much. They began flowering about the middle of April, but about the middle of June they were in their greatest perfection, surpassing anything of the kind I ever saw before; indeed, the plants were so large, that they occupied the greater part of the stage of the flower-house. Some plants having several stems from twelve to sixteen inches high, surmounted with numerous flowers, on one of which I counted sixty-seven flowers in full perfection at one time; on one plant of *speciosa* I counted seventy-three perfect flowers, and the same plant during the flowering season produced no less a number than one hundred and seventeen perfect flowers; the plant measuring, from the tip of the leaves on opposite sides, two feet in diameter, single leaves of which measured nine inches in diameter; and I have frequently heard visitors compare the leaves to those of cabbages. Indeed, of the whole thirty plants, any one of the number might be chosen as a picture bordering on perfection. One plant of *candida* had forty flowers in bloom at one time; after which I gradually dried it, gave it rest for about six weeks, again brought it into action by gentle waterings, and it is now coming beautifully and thickly into flower; likewise plants of nearly all others I possess. The remaining number of our collection (one hundred and forty plants) were not covered with tan, the stems and leaves not being sufficiently decayed for that purpose, and they were preserved in a temperature of about forty degrees, quite dry; they were not excited till the beginning of April, when they flowered in succession after the first lot, but not in such perfection as those I have described. I am aware that many eminent cultivators do not agree in drying off the plants in autumn, asserting that by so doing they are liable to perish by getting too dry; certain it is, that by keeping the plants in the stove, where a heat of from sixty to seventy degrees is required, and where vapour is generated by watering, exhalations from bark, etc., the plants are kept more or less in excitement, and that when brought into action many of them are quite unable to absorb the quantity of food bestowed on them in the shape of waterings, and therefore many of them perish. I can with safety say that by either methods I did not lose a single plant. But those that were preserved in tan, grew and flowered with nearly double the vigour of those that were exposed in pots. Gloxinias can be increased with as much ease as they can be flowered—namely, by cuttings, division, by the leaves, or by seeds, which ripen with us most abundantly. In the cultivation of *maculata*, it is requisite to thin out the shoots to two or three at most, by which they will grow between two and three feet high. This spring, in shifting a large plant of *maculata*, I removed all the smaller suckers, one of which I put in a sixty-pot, in sandy peat, merely putting a little white sand round the stem and plunging it in a hotbed without a glass; it is now beautifully rooted. I write this to show with what ease they may be propagated.

POPULAR ERRORS WITH REGARD TO BLIGHT.

BY A PROFESSOR OF NATURAL HISTORY, KING'S COLLEGE, LONDON.

There are few words of more vague import, or less understood, than *Blight*, which is popularly referred to some mysterious state of the air or winds, which may not only produce inflammation of the face and eyes, but is confidently believed to have the power of generating millions of insects, or, at the very least, carrying them about, no one knows whence or wherefore; though it would be equally correct to suppose this same blighting wind or air capable of generating or carrying about a flock of sparrows or a herd of black cattle. This blight has been described by some to wear the appearance of a haze or blue mist, or a sultry, purplish, or orange tinge in the air; while others promulgate certain fancies, equally unfounded and absurd, about its containing and depositing honey-dew, or being caused by electricity. That these notions are not confined to the vulgar and uneducated is proved by their having found their way into works of respectability and talent. In a work, for example, lately published, and distinguished for considerable ability, though full of fanciful theory, I find the following singular passage. In "those singular collapsions and accumulations called a *blight*, which cause them to become opaque and visible to the eye, the air itself becomes for miles suddenly filled with myriads of animalculæ, unseen before, and *unproduced by parents of the same sort*, which must, out of certain of these elements, first radiant and next gaseous, liquid and solid, collapsing and condensing, *suddenly and spontaneously have been formed.*"

Were this a mere theoretical fancy, unconnected with practice, we might leave it to be admired by the theorists without remark; but as it is not so, I shall briefly show the errors into which it leads. As far as insects are concerned, I am quite certain that all accounts of *blight*, similar to the preceding, are sheer nonsense; though there can be no doubt that cold winds, easterly or northerly, will produce inflammation of the eyes, and shrivelling and browning of the leaves of trees and hedges, as sultry, thundery weather may sometimes effect. Insects being proved, by extensive minute and accurate experiments, from the time of Redi downwards, to be invariably hatched from eggs laid by parents similar to themselves, it is utterly impossible they can be generated by any state of the air. It is no less impossible, though it has been asserted, that the eggs of insects are floated about by blighting winds; for insects, with few exceptions, not only glue their eggs upon the leaves and other substances where they are deposited, but even were the glue dissolved, and the eggs detached, they are far too heavy to float in the air, or be carried away by the winds.

Here, then, is the practical error; and a gardener or a farmer who believes in the mysterious power of blighting winds to generate insects concludes that it is as hopeless for him to endeavour to prevent the increase of these insects, as to try to chain the winds supposed to produce them. Whereas the fact is that these insects are all hatched from eggs which have been laid the preceding autumn, or early in the spring or summer; and if he had been on the look-out for these eggs, he might probably have discovered a considerable portion of them, minute though they be, and by destroying them have thereby saved his crops from depredation.

The sudden appearance all at once of so many insects, which gives some plausibility to the popular errors respecting blight, arises from the eggs being all hatched at once, or at least within a few days.

In consequence of their minuteness and the peculiar places where they are concealed, it is difficult and often impossible to discover the eggs of optrides; but it is comparatively easy to find the eggs of leaf-rolling caterpillars, of which the rose one is poetically celebrated, as the "worm i' the bud," and those which commit such ravages on oaks and currant trees are readily found in little, whitish-grey, round patches, about the breadth of a finger nail, or a card-wafer, firmly glued to the bark. If these be cut off during the winter, no blighting wind will be able to generate a single insect of that species, any more than to create a brood of chickens without eggs.

It is true that when plants are attacked by hosts of such insects, the excrement, etc., spreads over the foliage, which is generally termed honey dew, and which in proportion to extent is injurious to vegetation, flowers, and fruits. The remedies are by destroying the insects with smoke, or forcibly washing the foliage over and under with tobacco-water, thin size-water, or glue-water, and after a few days wash them over with pure lime-water, or clear water. Not only does the size or glue solutions destroy the insects, but it neutralizes the poisonous properties of the excrement of the insects.

RAISING ROSES FROM SEED.

BY AN OLD PRACTITIONER.

In recent numbers of the Floricultural Cabinet I have with pleasure noticed the observations on hybridizing various plants, with a view to the increased improvements of the various genera of ornamental plants. I have for several years directed my attention to raising Roses from seed, and my efforts have been successful in raising some of the finest new Roses which now grace our best collections.

During the months of September and October I repaired to several first-rate nursery collections of Roses, in order to see which kinds, in each class of Roses, bore fruit the most freely, and ripened the earliest; and I then procured several of each class, which I planted at the proper season. These bloomed the following summer, and having a very extensive collection of nearly all the finest double Roses, I carefully selected farina from the best of the double flowers, and impregnated the fruit-bearing kinds therewith. The fruit-bearing flowers are generally not quite double, and I found it to to be of use to thin out the larger trusses of flowers, so as to leave about half a dozen in a head of the plumpest buds.

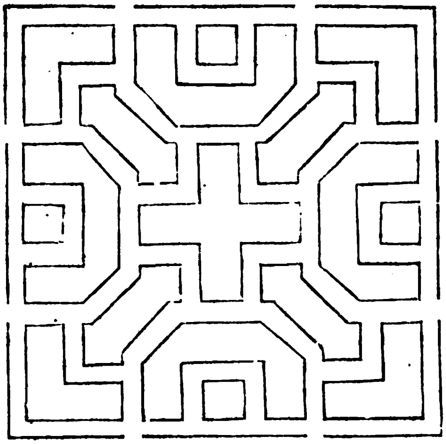
In the process of impregnation, just as the flowers to be impregnated are expanding, I cut away the anthers therein by means of a small pointed penknife or scissors, this prevents natural seedlings being produced from the kind. Where I had a specific design in the impregnation of any two kinds, after the operation had been effected, I tied a piece of fine gauze over the head of bloom, to prevent access of bees, etc.

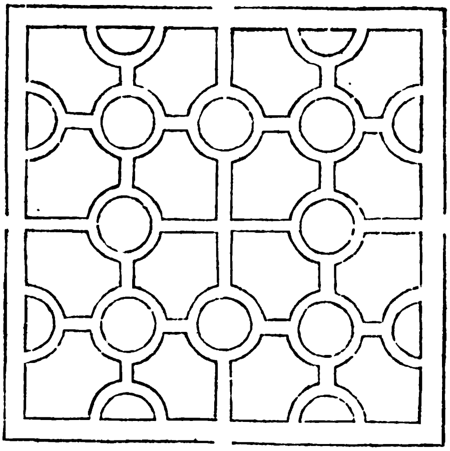
In autumn, as soon as the seed was ripe, I had it gathered and placed in gauze bags, and so kept in the seed-vessel till required for sowing. Early in spring I sow the seed thinly in boxes, and place them in a gentle heat in a common frame, keeping the soil moist, not wet, till that portion which then pushes appears to have done entirely for that season. When the plants can be safely transplanted I have them carefully taken up, and planted in a rich soil and warm situation in the open garden, where they remain to bloom. The general quantity of the seed does not come up the first season, but remains to the second. I therefore have the boxes kept just moist, till the end of the summer, and then remove them into a dry place during winter. Early in spring place them in a gentle heat, and all the good seeds soon push forth plants, which are treated as before named. Seed may be quite successfully treated by sowing in the open border, having it in a warm situation, and keeping it moist by covering the bed over with moss, etc. Two years are required here, as in the former named instance, to get up the whole. During winter I usually spread dry leaves betwixt the plants that come up, and remain in the seed bed, so they are secured from injury by frost, being yet tender; this protection is removed at the spring. Moss or tanners' bark may be substituted for dry leaves, where the latter are objected to.

I have paid particular attention to crossing the most *distant classes*, as well as to obtain kinds which will bloom the *longest period*, and to get *fine-coloured*, *fragrant*, and *very double Roses*.

DESIGNS FOR FLOWER GARDENS.

BY MRS. WILSON.





THE accompanying handsome designs of geometrical flower gardens are admirably adapted to be placed in close contact with the dwelling-house, greenhouse, or other similar structure, where they would form an harmonious appendage thereto, constituting a *union* between the building and the grounds, and at the same time present from the windows an interesting display of varied green foliage and the striking contrasts of the gay-coloured flowers.

The walks may be of gravel, and if they are constructed dry, and the surface be concreted with gas-tar and *fine* gravel, or sand, they will at all times be free from weeds, and dry to walk upon. (See articles on the formation of such walks in previous volumes of this Magazine.) The edging to such walks and beds may be of ornamental tiles, or with pieces of oak wood two to three inches thick, rounded at the top edge, and six or eight inches deep; four inches of it to be dipped in coal-tar, and buried in the soil, leaving two to three inches above the earth and walk to form the edging. That part of the edging above ground should be painted *stone* or other suitable colour; after giving it a last coat of *thick paint*, whilst wet, sprinkle it nicely over with silver white sand, or some of a yellowish stone colour, and it will form a remarkably neat edging, and very similar to stone in appearance. It will last for many years; the exposed part is easily painted, etc., at a trifling cost too, and thus always have a neat appearance. Dwarf Box, or some of the dwarf hardy Heaths form neat edgings; the latter are especially pretty when in bloom.

The present gardens, too, may be laid out on the grass, upon a suitably extended scale, so as to admit of the scythe or grass-cutting machine being used between the beds. Of course, grass paths are not at all times dry, but they have a cheerful appearance.

Such gardens being an appendage to an architectural building, may properly be ornamented by vases, etc.

TREATMENT OF THE COBÆA SCANDENS.

BY CELINE.

If you think the following remarks worthy of insertion, I shall be proud of contributing a mite of knowledge through the medium of your valuable work.

About the beginning of August I look over the plant and take off as many cuttings as I think necessary, allowing for a few to fail. I insert them, seven or eight in a pot, in loam and sand. I plunge the pot to the rim in bark (this is four or five years old), in a cool frame, and give very little water till the cuttings begin to grow. As soon as they have pushed shoots an inch long I remove the pots to the greenhouse for two or three weeks, by the end of this time they are pretty well rooted. I then pot them off separately in sixty-sized pots, and return them again to the greenhouse, where through the winter they are treated as greenhouse plants. About the beginning of May I turn them out of doors (a full south aspect I chose) against a trellis forty feet high, fastened against a house. The border is dug out to about thirty inches deep, and filled up with a mixture of loam, very rotten dung, vegetable mould, and a small portion of sea sand. It is not renewed every year, but as the plant is a free grower, I should think, from the quantity of roots it must throw out, it ought to be renewed once in three years. The plant is pretty freely watered while growing, and last season it covered nearly three hundred feet of trellis with thousands of its beautiful flowers, nor did the frost or rough weather of that autumn hinder it from blooming up to the end of November, there being at least one hundred and fifty flowers then open. Some persons state that slips must be taken instead of cuttings, but I make no difference. If a branch is broken, I cut it in lengths of about three eyes, or cut out the too crowded branches for that purpose. I must here remark that I prefer plants raised by cuttings to those from seed, as the latter would not have grown enough to plant out by early sowing, while those from cuttings are about five feet high when planted out, and the seed here does not ripen well. Plants, too, raised from cuttings flower more profusely than seedlings do.

REMARKS ON THE OLD DOUBLE YELLOW ROSE.

BY AN ARDENT ADMIRER.

OBSERVING in the FLORICULTURAL CABINET that you desire to have some account of the Double Yellow Rose from any place where it blows well, I therefore inform you that there is a tree in my garden noted for producing perfect flowers. It is now in high perfection in full bloom; this is the eleventh season it has blown under my care. It appeared to have been much neglected when I took it in hand. It is in a south aspect, the soil is naturally poor, in general not more than a foot deep before we come to the rocky stone. I increase them easily by layers from the old plant, and have sold hundreds since I have been here. Potted plants 1*s*. each, transplanted in beds 6*d*. each. I give the ground a good dressing of manure every year, when I take up the layers, and have the old tree pruned every season, much the same as I do bearing peach-trees. I have had a basin formed round the root to hold water, lined with stable manure to keep the soil moist; three times a week it has copious waterings, twenty gallons each time during this hot dry weather, which no doubt caused the old tree to produce such extraordinary fine specimens of bloom this season; dry hot weather and plenty of water is what the tree delights in.

THE SALVIA SPLENDENS.

BY SENEX.

THE observations of your correspondent in the July number on the cultivation of the *Salvia splendens* will be useful to individuals possessing large hothouses, but can be of no service to those who have only the convenience of a *small greenhouse* or *conservatory*, yet are desirous of growing and flowering this fine plant. I will therefore subjoin a few directions, by which the wishes of this last class of persons may be easily and readily accomplished.

Your correspondent recommends plants from six to eight feet high; and to obtain this object, he strikes his plants in May, and throughout the summer keeps them in the heat of the hothouse. Now it strikes me that the neglect into which this *Salvia* has fallen, is attributable to the *size* which the plants attain when propagated so early in the year, and afterwards heated in the way advised. For if the cultivator is desirous to prevent them from becoming so large, and therefore confines them at the roots, they grow tall, straggling, and unsightly, and moreover will seldom flower. To avoid the inconvenience of large plants, and to obtain suitable-sized for a small space, at the same time also handsome flowering ones, put in the cuttings about the third week in August, place them in a gentle hotbed or in the greenhouse (they do not require to be covered with hand or bell glasses), and after they have struck root, which will be in about a fortnight, pot them off into forty-eight-sized pots, using any rich light soil; afterwards keep them in the greenhouse, and when about six inches high nip off their tops, they will soon shoot out again, and will come into flower at the end of October, at which time they will be about two feet high, and will continue in full bloom till January. The *S. splendens* cannot be preserved through the winter in the temperature of the greenhouse; therefore, after the plants have done flowering, throw them away, unless you have the means of saving two or three to serve for stocks next season; otherwise you must depend for cuttings on your more fortunately situated friends.

I beg to observe, too, that Mr. Williams may grow large plants of the *S. splendens* with much less trouble by the following plan, than by the one he at present practises. Let him strike his cuttings in March, pot them off, place them in the greenhouse, harden them to the air by degrees, and when all danger from frost has passed, plant them in the open ground. As soon as the flower-buds appear, the plants must be taken up with as large a ball as possible, and planted in a pot or tub of a corresponding size. They must then be well supplied with water, and returned into the hot or greenhouse, where they will soon recover from the effects of the transplanting, and will flower beautifully and abundantly. These plants will be about five feet high, and proportionately bushy; indeed, the *S. splendens*, when treated in this manner, assumes a regular and handsome habit. If the side shoots are taken off during summer, plants with heads like Standard Roses are easily obtained, and placed in a collection of other plants the heads can be shown above them.

In a warm summer and autumn the *S. splendens* will flower very beautifully, if planted on the open border.

TREATMENT OF IXORAS.

BY MR. JAMES CARSTAIRS, GARDENER, LANGDEN HALL, KENT.

My treatment of Ixoras has been so successful in having most extraordinary blooming plants, that I have been requested to send the particulars of it for insertion in the Floricultural Cabinet, and which with pleasure I now do. I procure cuttings of the ripened wood about July, and plant them in five-inch or six-inch pots, which are found to be the most convenient size; these are nearly half filled with broken potsherds as drainage, a little rough peat is added, and the remainder is filled up with silver sand, into which the cuttings are inserted. The pots are plunged in a tan or other bed, where they will have bottom heat, and can be kept close. If the cuttings get too damp, the glasses are removed for an hour or two, and then replaced. With a brisk moist heat they will root in about five or six weeks (sometimes sooner), and may then get a little air for two or three days, after which the glasses are removed altogether. If they are found to flag after removing the glasses, they are replaced for a short period. As soon as they will stand without the glasses, they are potted singly into three-inch pots, and placed in a frame, hotbed, or stove. If in the latter, they have a hand-glass put over them until they make fresh roots. The points of the shoots must be nipped off, to make them bushy. In selecting cuttings make choice of those with short joints, as they make the best specimens. If they are rooted in a brisk heat previously to July they have a shift, but that entirely depends upon circumstances; generally it is best to let them remain in the small pots till the following February, when they may be shifted into six-inch pots, and placed in a light, airy situation, and where they will experience a *gentle bottom heat*, which is essential to success. During the time they are growing they require plenty of heat, air, light, and water. If air is not freely admitted in the growing season they are apt to become weak and spindly, in consequence of which they will either produce weakly blooms, or none at all; but with a temperature of from seventy-five to eighty degrees, with plenty of air, and shifted in February, they will produce short-jointed and well-ripened wood by September; after which they will stand in a temperature of fifty degrees until they are wanted to flower. By attending to this course of treatment an early and good bloom will be secured. The soil I use is composed of two-thirds turfy peat, one-third turfy loam and Reigate sand, using it as rough as possible; the larger the plants, the rougher the compost is required. Water must be used sparingly in winter, and more freely as the season advances and a higher temperature is required, which will be about the middle of January. Increase the heat as the season advances. If the plants are wanted for *exhibition*, and they are advancing too fast, remove them to a cooler place, but this must be done before a single bloom has expanded, the flowers being liable to drop then, on a sudden transition. After the blooming is over they will make their growth, set their blooms, and be prepared for a lower temperature during the winter. With proper attention they may be had in flower almost at any time in the year. I was advised to try the one-shift system, but it proved a failure. My practice is to shift *progressively*, removing the plants from a three-inch to a six-inch pot, and from that to a nine-inch one and then to a twelve-inch one, and so on. Ixoras are liable to be infested with all kinds of insects, such as the thrip, white and brown scale, mealy bug, green fly, and red spider. If the plants are well syringed at favourable opportunities, both *under* the leaves as well as *over* the top of the plant, and not half done, the insects will be kept travelling, and will never do any mischief. It is when they lie up unmolested that they injure the plants. I have used thin size-water, sprinkling the plant over and under, or small pots I dipped overhead. This always destroys the insects. I wash them freely in pure water two or three days afterwards. If the method of treatment I pursue be duly attended to, and in addition to giving a good supply of soft water at the roots during the growing season, and once a week a good soaking of liquid manure, every shoot will have a fine head of flowers. I have had some nine inches across.

REMARKS ON HYBRIDIZING PLANTS.

I HAVE noticed in the CABINET, from time to time, remarks by the conductor on encouraging the hybridizing of various classes of plants, and which induced me to turn my attention to the process last season with the Amaryllis, Achimenes, Verbena, Fuchsia, Phlox, Pelargonium, and others. Some of the seeds I obtained early last summer I sowed immediately, and the others early this spring, and now I have, as the result, very numerous, and in almost endless variety, beautifully distinct flowers of the above, with the exception of the Amaryllis. The process is easy,—applying the pollen of one flower to the stigma of another. The flower to which the pollen is about to be applied must have its own anthers (containing the pollen) cut away before they burst, after which, the pollen from the different plant may be applied to the stigma. If the pollen of the plant to be operated upon is not cut away, the stigma is likely to be operated upon by the pollen of the same flower, and the result be natural seedlings. The stigma, when in a proper state to have the pollen (powder-like) applied, is glutinous outside, and the powder adheres to it. I have noticed that no certain criterion can be relied on as to the form the new plant will take; sometimes I find that the male (pollen) plant is assumed, and in others the contrary. I uniformly found that the more perfect in form both parents were, so was the production. As it respects the colours, I have not had two alike from the same plant; when all the flowers on a plant have been operated upon by pollen, from one plant, the most decided, strong, and clear colours give the more distinct in the progeny. It is only by observation, in the progress of the operation and blooming, that the best results can be safely expected in future attempts as to colours, but in form, where the flowers of both are of fine form, those raised therefrom will certainly be good. As far as the majority of my one year's experiments go, I find, *in colour*, the seedlings partake more of the mother plant; and *in form*, that of the plant from which the pollen was brought.

The entire process, from first to last, has afforded me much gratification, and those persons fond of flowers will derive pleasure in its pursuit. The results of but a few years' application to the system of hybridizing has already added immense charms to the beauties of the stove, greenhouse and flower garden, as well as to fruits, and the process being now adopted on a far more extensive scale, in a few years we shall, no doubt, have quite astonishing results to grace our floral exhibitions, as well as domestic compartments.

A QUESTION WHETHER THE PUBLICATION OF THE SUCCESSFUL OR UNSUCCESSFUL PRACTICES OF GARDENING CONTRIBUTE MOST TO THE IMPROVEMENT OF PRACTICAL READERS.

BY SENEX.

It is often observed that the faults and fooleries of others operate more impressively as warnings, than the recital of success acts incentively to greater care and vigilance. There is a rankling sting and dread about the first, much more intense than any emulative feeling consequent upon the contemplation of the second. Hence it has been held that if all failures, and the cause or causes of them, were faithfully recorded, much good would accrue, as such information would act like a beacon to guide inexperience along the safe path of practice.

But how can it be expected that the most candid writer could calmly sit down to publish his own errors? A sense of public duty is rarely so predominant as to induce a man to acknowledge voluntarily his own want of foresight, of care, or of skill. This indeed can hardly be expected; but, nevertheless, such reports would be very useful, and, to an ingenuous mind, a frank confession would leave no uneasiness, nor would it be any disgrace. Failures will happen, in spite of the highest talent, unceasing care, and the most consummate skill. This is a fact universally admitted, and therefore no odium can attach to a mere error of judgment, or to the occurrence of an event over which the superintendent had no control.

In another point of view, the sooner professional errors are acknowledged, and even published, the better; because, if made in the management of particular flowering plants, shrubs, wall-fruit trees, for instance—as planting too deep, or in their disposition, as placing them too near together (these being permanent objects)—the error is sure to be detected sooner or later, and perhaps reported by visitors, from whom it always comes ungracefully, and too often unfaithfully.

It may be said, however, that if a man write at all, it will probably be of some successful exploit of his own; and if truly and minutely enough described (and not arising from circumstances purely local), it answers as well as if he had written of an unsuccessful experiment, because the latter may be inferred from the detail of his successful practice.

Gardening has been less subject to be disfigured by erroneous or irrelevant writings than its sister art *Agriculture*, not only because it is an employment more definite in execution, but also because its professors are more on an equality among themselves—is less invaded by amateur scribblers, and its practical excellences or defects more universally known. This happens in consequence of their fraternal intercourse with each other, from the custom of the juniors passing from one celebrated place to another in pursuit of their business, and from their general character as reading men. This character gardeners have long enjoyed; and since gardening periodicals were set going by the indefatigable men of twenty to thirty years ago, literary gardeners and gardening have very much increased. That such periodicals are serviceable to mankind in general is undeniable; and though their contents are neither *always new*, yet, among other things, they go far to answer the question at the head of these remarks; not indeed by the insertion of voluntary admissions of failures in practice by the unsuccessful practitioners themselves, but by criticism of neighbours and tourists, whose communications, if candidly and courteously written for the sake of professional truth, are sure of a place in those periodicals.

Criticism on what is done or omitted to be done *by others* has often a snarling, carping kind of aspect, and too frequently gives offence to the parties or places pointed at, more especially in matters of taste; in this affair, every man has what he calls his own, and should certainly be allowed to enjoy it undisturbed, provided he does not impose it on others. Censure on the want of space or of high keeping in gardens is much oftener caused by the *want of means* than by the want of either taste or of propriety. Such circumstances are not legitimate objects of criticism; but on *principles of practice*, or of their *right or wrong application*, every one may exercise his own judgment, and freely canvass men and measures, as may appear to him necessary for banishing error or for the maintenance of truth. This gives periodical publications, whether on arts or sciences, an inquisitorial character; and while kept pure from low abuse and frivolous petulance, raise them in the estimation of readers into a kind of tribunal to which all will cheerfully pay a due deference.

Viewed in this light, periodical publications have a peculiar value. Any error which may creep into one number is pretty sure of being corrected in the next or some following one; and as refutation must be accompanied with some discussion *pro* and *con*, facts are elicited or new ideas broached, which, but for the first mistake or misstatement, would have perhaps laid dormant for ever.

REVIEW.

The Favourites of the Flower Garden. By G Francis, F.L.S.
London: Simpkin, Marshall, & Co., Stationers' Hall Court.

Mr. Francis has long been an authority in floral matters, and this very interesting and useful book additionally confirms his reputation, also increases the obligation owing to him by both amateur and practical gardeners. It is full of useful information, and ought to be the companion of all who delight in possessing an ornamental and well-managed flower-garden throughout the year.

It is a very cheap work, and thus placed within the reach of all persons. By the following extract our readers will see the nature of its general contents.

3.—EVERLASTING. *GNAPHALIUM.*

Sand Everlasting. *Gnaphalium arenarium.*

This is the plant alluded to in page 71 as that which in all probability was the one called Amaranth by the ancients, and which is still to this day called by the French *Immortelle.* It is used by them, as it was in former times, to decorate tombs, and as an emblem of immortality, which the unchanging nature of the flowers would naturally suggest. These are about the size of peas, and grow in clusters on a downy and leafy stem, six or eight inches high. The leaves are small, oblong, blunt, and covered with a white down. The roots spread very rapidly, and by their division the plant may be propagated. The place of growth should be dry, warm, and sandy; the better to imitate its native places, which are the sea-shores of the South and West of Europe. The flowers, which make their appearance abundantly in June and July, and if undisturbed would remain unchanged till destroyed by frost, are gathered when in perfection, and used for the above purposes of decoration, and also in winter or dried-flower nosegays. They are frequently dyed black, green, or red, and as such used as artificial flowers in head-dresses, etc.

Whether this be the true Amaranth or not is doubtful. It is certain that the Amaranth was one of the principal votive flowers of former as well as of modern times. Milton speaks of it as forming the diadem of the angels:—

"With solemn adoration down they cast
Their crowns, inwove with Amaranth and gold.
Immortal Amaranth! a flower which once
In Paradise, fast by the tree of life
Began to bloom; but soon for man's offence
To Heaven removed, where first it grew—there grows
And flowers aloft."

Yet Milton in another place classes it among flowers "that sad embroidery wear;" and Spenser describes the Amaranth as a purple flower. We will let the young botanist puzzle this matter out, being assured that he will feel an interest in a flower, hallowed by being consecrated to departed friends, and which could suggest sweet lines like the following:—

"I sought the fairest and gayest flowers
Of the new spring's beautiful blossoms!
And I gathered them at morn's first hours,
And placed them in childhood's bosom!
Yet sorrowing there
The dew-drops hung,
And the pearly tear
To the young flower clung!

I culled the best sprigs of the Rose and Vine,
By the summer's noon-day sun;
And twined me a garland for manhood's prime,
And in truth 'twas a lovely one!
But withered the Rose
Ere the day was done,
And the purple huse
Of the grape were gone!

I wandered at night o'er the dreary lea,
'Mid the wintry tempest's rage,
And I took of the Yew and the Cypress tree,
And wove a dark wreath for age!
And when I arose
I beheld them wave
Their sable hues
O'er the old man's grave!

Then I thought of the ne'er fading Amaranth bowers,
Which blossom for ever above,
And thought me eternity's beautiful flowers
Must blow in those regions of love!
And I sigh to reach there
To twine me a wreath
Unprofaned by a tear
Or mortality's breath!"

NOTES ON NEW AND SELECT PLANTS.

102. Genetyllis tulipifera. Nat. Ord. *Myrtaceæ.* Syn. *Hedarome tulipiferum.* This truly beautiful hardy greenhouse shrub was discovered by Mr. Drummond in Western Australia. A plant of it was shown at the Horticultural Society's Exhibition at Gore House,

which formed a neat, rather erect, bushy plant, about three feet high, and as much across, bearing upwards of two hundred flowers. Each branch is terminated with a *drooping* involucre (flower), somewhat resembling a small tulip, about two inches long and an inch and a half across the expanded mouth, white tinged with primrose, and deeply veined and streaked with rosy crimson. It merits a place in every greenhouse or pit-frame. (*Fig. in Bot. Mag.* 4858.)

103. RHODODENDRON RETUSUM (*blunt-leaved*). Nat. Ord. *Ericaceæ.* Syn. *Viereya retusa.* A neat evergreen bushy shrub, growing about two feet high. The leaves are thick, two inches long, nearly oval-shaped. The flowers are produced in terminal umbels, of six to nine blossoms in each. Each flower is tube-shaped, with a slightly spreading five-parted limb (face of the flower); the tube is an inch and a quarter long, and the limb about three parts of an inch across; of a bright scarlet outside, and yellow within. It is a native of *high mountains* in Western Java, where it was first discovered by Blume; and Dr. Horsfield found it in 1818 at Sumatra, at an elevation of 3000 feet, in shady situations. It will therefore succeed in our greenhouses or pit-frames. It is a charming free-blooming plant, belonging to the group of *Rhododendron ferrugineum* and *R. hirsutum*, so well known in our shrubberies. Messrs. Rollison, of Tooting Nursery, obtained seeds of it, and plants have bloomed in their establishment this season. It highly merits a place in every greenhouse. (*Fig. in Bot. Mag.* 4859.)

104. STREPTOCARPUS GARDENII. Nat. Ord. *Didymocarpeæ.* It is a native of Natal, and its appearance is somewhat similar to *S. Rexii*, but nevertheless quite distinct, both in leaves and flowers. The flowers are produced in profusion; *each* floral stem rises six to eight inches high, bearing two flowers; they are similar in size to those of *S. Rexii*, but those of *Rexii* are of a *pale blue*, whilst the tube portion of those of *S. Gardenii* are *green* or *greenish-white*, and the large spreading five-parted lobes (front of flower) are a *lilac* colour, streaked on the three lower lobes with rich red lines or dots. The tube is two and a half inches long, and the front of the blossom one inch and a half. It blooms profusely in the greenhouse throughout summer. It is rather remarkable that this pretty species, as well as the *S. Polyanthus*, which we noticed last month (page 179), were raised (at Kew) from seeds accidentally contained in soil sent from Natal, with some other plants growing therein. (*Fig. in Bot. Mag.* 4862.)

105. RHODODENDRON CALIFORNICUM. Mr. Lobb sent this handsome species from California to Messrs. Veitch, in whose establishment it has bloomed this season, and plants were exhibited at the Crystal Palace Floral Fête. The plant bears a close affinity in appearance to a small plant of *R. Catawbiense*, but of dwarf habit. The flowers are borne in large terminal heads, each blossom two and a half inches across, of various tints of rose and pink colours, spotted with yellow. Plants about a foot high have (each) several heads of these

most beautiful flowers. This species has stood the winter well in the open ground at the Exeter Nursery. (*Fig. in Bot. Mag.* 4863.)

106. CHŒTOGASTRA LINDENIANA. Nat. Ord. *Melastomaceæ.*—This most magnificent flowering plant was first discovered by M. Linden upon the summit of Monserrata, at an elevation of 9840 feet. Subsequently it was found by M. Schlim, in New Granada, and by him sent to M. Linden, in whose establishment it has flowered. It forms a neat bushy plant from one to two feet high; its leaves are about two and a half inches long, ovate-oblong-shaped, five-nerved, very pretty. The flowers are produced in large terminal panicles; each blossom being two and a half inches across, of a rich *brilliant crimson*, and continue to display their magnificence for a considerable period. It blooms profusely, and highly merits a place in every stove or warm greenhouse. (*Fig. in Flor. des Serres*, 1012.)

107. LOCHERIA (*Achimenes*) MAGNIFICA. Nat. Ord. *Gesneriaceæ.*—This splendid plant has been introduced by M. Linden, from the province of Popayan, in New Granada, and has bloomed in his establishment at Brussels. The plant grows from two to three feet and a half high, and is of a strong robust habit. Each leaf is four inches long, ovate-oblong shape; very neat. The flowers are produced in large terminal leafy heads, and are in form similar to *Achimenes hirsuta* and *pedunculata*. Each blossom has a tube one and a half inch long, and the limb (front) two inches across; the flower is of a lively scarlet-crimson, with a yellow throat, and the large limb is beautifully striped and spotted with a deep purple. It is a splendid acquisition, and blooming so profusely is highly ornamental. (*Fig. in Flor. des Serres*, 1013.)

108. LAVATERA MARITIMA. Nat. Ord. *Malvaceæ.*—The habit of this showy species is similar to the *Lavatera arborea*, and a somewhat woody, tree-like, very branching plant. It grows naturally on the banks of the Mediterranean Sea, and in the central part of France. It blooms profusely; the flowers are produced in terminal racemes, each shoot terminating with several flowers. Each blossom is three inches across, white, and each of its five petals has a *large* dark violet and carmine streaked blotch, which compose a striking centre. It is exceedingly showy; it will flourish in the open ground in England during summer, but requires to have the shelter of a greenhouse or pit-frame in winter. (*Fig in Flor. des Serres*, 1007.)

109. BILBERGIA MARMORATA. Nat. Ord. *Bromeliaceæ.*—A native of Brazil, and a very ornamental plant for the stove. The leaves (Pine Apple plant-like) are long, the edges curving inwards, green beautifully marbled with a bright chestnut-brown colour. The flowers are produced in a large panicle; the lower portion of each blossom is pure white, and the upper portion a rich blue colour. The branches of the panicle, and the leaves it bears, are of a rich rosy carmine, the whole combining to render the plant highly interesting and ornamental. It merits a place in every hothouse or warm greenhouse. (*Fig. in L'Illustration Horticole*, 48.)

110. Alonsoa Warscewiczii.—It is a neat, half-shrubby, bushy plant, from one to two feet high, but by stopping the leads it may be kept at any intermediate size. It is a profuse bloomer, the flowers being borne in long spikes, each blossom about three parts of an inch across, of a bright salmon-scarlet, with a yellow eye. It is a pretty showy plant for the greenhouse, as well as an excellent bedding plant. Plants may be procured at a cheap price, in the principal nurseries.

111. Papaver aurantia.—This very handsome flowering poppy has the habit of the Welsh Poppy, grows about ten inches high, and blooms profusely. Each blossom is two inches across, of the richest orange colour. It is a hardy herbaceous plant, and ought to be grown in every flower garden.

MISCELLANEOUS.

Horticultural Fete, held at the Crystal Palace, Sydenham, *June 2nd*, 1855 (continued from page 182).—*Thirty Stove and Greenhouse Plants, grouped for Effect, in or out of flower.* Second Prize, £15, to Messrs. Veitch. This collection was arranged at the west *end*, extending too on the south and north side-wings, so that the entire collection could not be seen at one glance, which considerably depreciated the *effect*, though the plants were better disposed in contrast than those of Messrs. Rollison. This collection was disposed so that it had three principal or centre (down) rows. At the top shelf of the middle group was the noble Tree Fern of New Zealand, *Dicksonia squamosa*, having seven wide spreading branches. In front of it (on second shelf) was a splendid *Cissus discolor*, and below it (on the third shelf) an *Aerides virens*. On each side of the *Cissus discolor* was a *Phalænopsis grandiflora*, in most profuse bloom. These were backed by a yellow *Oncidium sphacelatum* and *Dendrobium nobile*. At each corner there was a *Norfolk Island Pine*, associated with the yellow *Dendrobium densiflorum*, *Cattleya Mossiæ*, then the two match *Philodendron pertusum* and *pinnatifidum;* two match *Azaleas, lateritia* and *coccinea*. On the left of these were the fan-leaved Palm, *Livistona borbonica; Medinella magnifica* (a standard); *Lilium giganteum*, six feet high, with twelve of its large drooping white and red striped flowers; *Erica depressa*, with a profusion of its rich yellow blossoms; together with *Platycerium grande*, and *Coleus Blumei*, with its strikingly marked leaves of crimson-brown, edged with green. The right wing had nearly the same kind of plants (match ones) to the above-named wing, with the addition of a golden variegated Screw Pine and the Dragon Tree, *Dracena Draco*. The intermixture of plants not in bloom, but having very beautiful foliage, gave a more striking effect to set off with greater advantage those in flower than otherwise they would have had. The introduction of giving prizes for the best effect in grouping or staging of plants, etc., is a great improvement, and we feel assured that henceforth an advance in this particular will take place throughout the universality of the Floral and Horticultural Exhibitions of this country. In order to a proper arrangement, attention must first be given to the centre of the collection, which must always form the *key* to the structure, whether that key be a single plant or a down row of several steps or shelves. On each side of the centre plant there must be one that will to some extent not only harmonize with it, but in particular do so with its opposite, in form of growth, size, foliage, and flowers. Thus, suppose the plant on the right-hand side of the centre to have *leaves* and *flowers* of a *large size*, and its structure a broad bush, as a *Camellia* for instance, it would be improper to have the plant on the left of the centre such as a small *upright growing* Heath, as there would be the opposite of harmony both in form of growth and size of foliage and flowers. The colours of the foliage and flowers may be as different as possible, so they contrast strikingly with those placed next to them, thus the effect would be increased in proportion. A little practice with specimens of shrubs, flowers, etc., will soon point out to the individual what will approximate nearest to perfection therewith, and though at first sight this system of arrangement may appear complicated, it will soon become quite familiar, and readily accomplished. In addition to the first and second prizes in this class there were two others of £7 each and two of £5 each, which were awarded to collections exhibited by gardeners.

Class Second, for Twenty Stove and Greenhouse Plants in Flower.—First prize, £30, to Mr. May, gardener to H. Colyer, Esq., of Dartford, for most extraordinary fine plants of *Epacris miniata grandiflora*, six feet high by six feet across, in profuse bloom. *Dipladenia crassinoda*, grown to a fine bush, and full of bloom. *Eriostemon Nerifolia*, six feet by six. *Epacris grandiflora*, six feet by six. *Aphelexis macrantha purpurea*, five feet by five. *Leschenaultia azurea*, a superb plant, in profuse bloom. *Pimelea mirabilis*, in profuse bloom, the flowers of a bright rose, in the way of *Hendersoni*. *Gompholobium polymorphum*, formed into a fine bush, and in profuse bloom. *Erica elegans*, very showy. *Boronia pinnata*. *Genetyllis tulipiferum*, the flowers pale, in consequence of being grown in too high a temperature—the cooler its atmosphere the richer its colours. *Azalea exquisita*, covered with its beautiful variegated salmon and white edged flowers. *Rondeletia speciosa-major*, beautiful, with its numerous pendulous heads of tube-shaped orange-scarlet flowers. *Dillwynia nudes sanguinea*, profusely in bloom. *Stephanotus floribunda*, one mass of its fine large heads of pearl-white blossoms. *Leschenaultia formosum*. *Allamanda Nerifolia*. *Phænocoma prolifera*, and *Chorozema Lawrenciana*. There were several other collections, for prizes of £15, £10, etc. They consisted of many of the above named, and *Acacia grandis*, *Polygala Dalmatiana*, *Gardenia Fortuni*, *Ixora coccinea*, and *crocata*, *Cactus coccinea magnifica*, *Erica Cavendishii*, *Medinella Sieboldi*, lighter flower than *M. magnifica*, very fine ; *Pleroma elegans*, and *P. heteromalla*. Also fine Vincas of the white with red eye, and the rose-coloured. These were fine specimens, and we give the names, in order that our readers may know what plants are calculated to make *exhibition ones*.

Twelve Best Stove or Greenhouse Plants.—First prize, £18, to Mr. Dods, gardener to Sir John Cathcart, for *first-rate plants* of *Erica Cavendishii*, *Azalea Decora* (a bright rose), *Erica depressa*, *Chorozema illicifolia*, *Pimelea spectabilis*, *Boronia pinnata*, *Azalea variegata*, *Leschenaultia formosa*, *Gompholobium polymorphum*, *Aphelexis macrantha purpurea*, *Epacris miniata grandiflora*, and *Leschenaultia biloba superba*. The *Gompholobium* was trained to branchy sticks, and nicely arranged so as to form a good *bush*, being much more tasteful than the old formal mode of a flat-faced wire framework.

Best Collection of Twenty Orchids.—First prize, £30, to Messrs. Veitch, for Lælia purpurata, Cattleyii Mossiæ, Aerides Veitchii, maculosum, superbum, and odoratum-majus, Dendrobium nobile, densiflorum, onosmum, and moniliforme, Oncidium ampliatum-major, Phalænopsis grandiflora, Saccolabium guttatum, Calanthe veratrifolia, Cattleya intermedia, C. Mossiæ superba, Cypripedium barbatum-major, Vanda teres, Sobralia macrantha, Vanda tricolor, and Cælogyne Lowii. The whole were admirable specimens in fine bloom. Second prize, £20, to Messrs. Rollison, for Aerides odoratum, A. affine, A. affine roseum, A. erispum, A. Larpentæ, Brassia brachiata, Cattleya Aclandæ, C. Leopoldi, C. Mossiæ, Cypripedium barbatum, Dendrobium Calceolaria, D. moschatum, Odontoglossum hastilabium, Phalænopsis amabilis, P. grandiflora, Stanhopea oculata, Saccolabium guttatum, Sobralia Galeottiana, S. macrantha, Uropedium Lindeni. The first prize, £30 (*Amateurs*), to Mr. Mylam, gardener to S. Reid, Esq., of Burnham. Second prize, £20, to Mr. Williams, gardener to C. B. Warner, Esq., whose collections were almost of the previous named, with splendid additions. Prizes were offered for best twelve plants, for which £18, £12, etc., were given.

Twenty Variegated-leaved Exotic Plants.—First prize, £7, to Messrs. Veitch, for Physurus pictus, P. argenteus, Coleus Blumei, Cissus discolor, Maranta roseo-lineata, Aloe-leaved Yucca, Hydrangea japonica, Maranta Warscewickzi, Begonia Thwaitesi, Screw Pine gold-striped, Ruellia maculata, Vriesia speciosa, Caladium pictum, Calathea zebrina, Dracæna terminalis, Aspidistra lurida, Croton pictum, Anæctochilus setaceus and intermedius, and Aphelandra Leopoldii. There were several other collections which had different from the above, viz., Duranta variegata, Tillandsia splendens, Stenorhyncus maculata, Dracæna Sieboldii striata, the Java Lady's Slipper, Pandanus javensis varieata, Ananossa sativa variegata, and Hydrangea hortense maculata.

Ten Plants with Fine Foliage.—First prize, £5, to Messrs. Veitch, for Zamia pungens, Philodendron pinnatifidum, Berberis Nepaulensis, Plectocoma elongata, Calamus viminalis, Sabal umbraculifera, Musa Cavendishii, Ceroxylon Andicola, Dracæna Draco, and D. indivisa. The above ten, associated with good-sized Palms and Cycads, had a very imposing effect. Second prize, £3, to Messrs. Rollison, for Aralia integrifolia, Dracæna indivisa, D. gracilis, Rhopala Estrellensis, R. magnifica, Lomatia australis, Cissus discolor, Canna discolor, Dioscorea zebrina, and Dracæna terminalis. These were exceedingly interesting.

MISCELLANEOUS.—*Fine Plants:* First prize, £3, for *Cephalotus follicularis.* Second, £2, for *Aphelexis macrantha rosea.* Third, £1, for *Calceolarias.* Extra prizes, £3, for *Callitris cupressiformis,* a very handsome evergreen Coniferous tree, somewhat resembling *Cupressus funebris* (funeral Cypress), having a beautiful drooping habit; 16 plants of it were exhibited by Mr. Collins, gardener to E. H. Chapman, Esq., of Hornsey. It is one of the most interesting of the tribe. Mr. Kinghorn, of Isleworth, had a seedling *Geranium* (*Pelargonium*), in habit like *Commander-in-Chief,* having *bright orange-scarlet* flowers; a very valuable acquisition. Messrs. Veitch had *Gloxinia Adamia-oculata,* of the erect *Fyfiana* section, lilac with white throat; very pretty.

Twelve Greenhouse Azaleas.—First prize, £20, to Mr. Green, gardener to Sir E. Antrobus. Second, £15, to Messrs. Frazer. Third, £10, to Mr. Clark; and three other prizes of £10, £7, and £4. The best kinds shown in the whole were, A. Extrana, soft deep rose; Glory of Sunning Hill, Jenkinsii superba, Iveryana, Griswoodiana, Broughtonis, Trotteriana, Symmetry, fine form; Perryana, Exquisita, Magnifica, fine white; Pride of Dorking, superb white; Barclayana, white striped with purple; Beauty of Reigate, white striped with scarlet; Variegata, and Crelenon, in the way of Exquisita, of superb form—Mr. Ivery, of Dorking, is disposing of small plants, at two guineas each. The best single specimen was Iveryana. Any or all the above are worth a place in every greenhouse or pit-frame.

Six Fuchsias in Pots, Distinct Kinds.—First prize, £6, to Mr. Bousie, of Stoke Park, consisting of three dark and three light varieties, viz., Vanguard, Othello, Alpha, Vallecheur, Queen of Hanover, and Miss Hawtrey. The plants were admirably grown and formed in a *pyramidal shape,* from six to ten feet high, in profuse bloom. We thought they were not as distinct from each other as they ought to have been; in this particular, attention should be given to have as striking a contrast as can consistently be.

Twelve Pelargoniums (Nurserymen).—First prize, £12, to Mr. Turner, for Carlos, Governor-General, Una, Achilles, Exactum, Mochanna, Rosamond, Esther, Majestic, Astræa, Sanspareil, and Zeno. Second prize, £8, to Mr. Dobson, for Ambassador, Purpureum, Empress, Exhibitor, Delicatum, Magnet, Gulielma, Prince Arthur, Rosamond, Painter Improved, Enchantress, and Vulcan. Also four other prizes.

Six Pelargoniums (Amateurs).—First prize, £6, for Purple Perfection, Enchantress, Rosa, Queen of May, Pandora, and Lucy. Second prize, £4, Wonderful, Magnet, Carlos, Portio, Serena, and Sanspareil. Also four other prizes.

Twelve Fancy Pelargoniums.—First prize, £12, to Mr. Turner, for Perfection, Madame Sontag, Caliban, Erubescens, Delicatum, Formosissimum, Gaiety, Celestial, Jenny Lind, Cassandra, Electra, and Richard Cobden. Second prize, £8, to Mr. Gaines, for Galatzin, Miss Sheppard, Princess Alice Maud, Vandyke, Eclipse, Hero of Surrey, Delicatum, Formosissimum, John Bull, Caliban, Queen Victoria, Erubescens.

Six Fancy Pelargoniums (Amateurs).—First prize, £6, for Delicatum, Jenny Lind, Advancer, Princess Marie Galitzin, Madame Sontag, and Hero of Surrey.

Twelve Pansies in Pots (Nurserymen).—First prize, £3, for Uncle Tom, Isabella, Duke of Perth, Emperor, Crimson Perfection, Satisfaction, Queen of the Isles, Brilliant, Duke of Newcastle, John Ingram, and Royal Visit.

THE ROYAL NATIONAL TULIP EXHIBITION for 1855 was held at Cambridge, on May 29th. The collection shown consisted of 14 stands of six blooms, 10 of twelve blooms, 3 of eighteen blooms, and about two hundred and fifty single specimens—making about 500 in the whole, which is much less than on any previous year's exhibition; this was owing to the very ungenial season. The following are the awards.

Six Blooms, one in each Class.—1st. Mr. Charles Turner, Slough, with Madame Vestris, Duke of Devonshire, Alexander Magnus, Rutley's Queen, Triomphe Royale, and Glory of Abingdon. 2nd. Mr. Charles Spencer, Thurlston, by Derby, with Royal

Sovereign, Victoria Regina, Heroine, Pilot, Salvator Rosa, and Triomphe Royale. 3rd. Mr. R. I. Lawrence, Hampton, with Everard, Queen Charlotte, Kate Conner, Byzantium, Triomphe Royale, and Vivid. 4th. Mr. H. Betteridge, Milton Hill, Abingdon, with Bion, Royal Sovereign, Friend, Triomphe Royale, David, and Everard. 5th. Mr. Thomas Adams, Derby, with Captain White, Aglaia, Gem, Duke of Devonshire, Salvator Rosa, and Heroine. 6th. Mr. Joseph Hunt, High Wycombe, with Lady Denman, Camuse de Croix, Sir Joseph Paxton, Princess Royal, Bion, and Vivid.

Twelve Blooms.—1st. Mr. Betteridge, with seedling (feathered byblœmen), seedling (flamed byblœmen), Sir E. Codrington, Heroine, Royal Sovereign, Bion, Rembrandt (Wood), Glory of Abingdon, Thalia, Charles Brown, Mountain Sylph, and Triomphe du Monde (or Pass Salvator Rosa). 2nd. Mr. Hunt, with Nora Creina, Gold Cup, Lady Stanley, David, Ulysses, Heroine, Violet, Quarto, Pilot, Brulant (Beteral), Princess Royal, Lustre, and Lady Catherine Gordon. 3rd. Mr. R. Headly, with Chellaston, Penelope (Headly), Sarah (Headly), seedling, Aglaia feathered, Aglaia flamed, Duke of Devonshire, Pilot, Apollo (Headly), Platoff, Adonis (Headly), and Better than Fanny Goepel. 4th. Mr. Lymbery, with Paul Pry, Shakspeare, Platoff, Vivid, Queen Charlotte, Lorenzo, Nepaulese Prince, Rosa Blanca, Triomphe Royale, Comte de Vergennes, Joe Maltby, and La Vandicken. 5th. Dr. Sanders, with Smith's Sir Robert Peel, Sir James Watts, Princess Lamballe, Triomphe Royale, Polyphemus, Caledonia, Walworth, Claudiana, Royal George, Duke of Devonshire, Reine d'Egypte, and Ariel. Other competitors were Mr. Colman, Norwich; Mr. Allestree, Mr. Spencer, Mr. Thornily, and Mr. Barratt.

Eighteen Blooms.—1st. Mr. Charles Turner, with Alexander Magnus, Madame Vestris, Rosa Blanca, Aglaia flamed, Duke of Devonshire, Triomphe Royale, Aglaia feathered, Pilot, Princess Royal, Strong's King, Primo Bien du Noir, Selim, Purple Perfection, Heroine, Delaforce's King, Countess Harrington, Polyphemus, and Arlette. 2nd. Mr. Lawrence, with Polyphemus, Vicar of Radford, Queen Charlotte, seedling (feathered bizarre), Mrs. Lymbery, Aglaia, Pilot, Claudiana, Madame Vestris, Maid of Orleans, Vivid, Violet Imperial, Friend, Armidia, seedling (bizarre), Heroine, Queen of the North, and Sphinx. 3rd. Mr. Lymbery, with Platoff, Sir Joseph Paxton, Strong's King, Paul Pry, Duke of Devonshire, Captain White, Mrs. Lymbery, Bacchus, Lady Denman, Lysandre Noir, Hepworth's Sarah, Crown Prince of the Netherlands, Comte de Vergennes, Aglaia, Agnes Cresswell, Joe Maltby, Geraldine, and Lavinia.

SINGLE SPECIMENS IN CLASSES.—*Feathered Bizarres:* 1, Royal Sovereign, Mr. C. Spencer; 2, ditto, Mr. T. Houghton; 3, ditto, Mr. Charles Spencer; 4, ditto ditto; 5, Duke of Devonshire, Rev. S. Cresswell; 6, Sphinx, ditto. *Flamed Bizarres:* 1, Royal Sovereign, Mr. C. Turner; 2, Seedling, Mr. R. I. Lawrence; 3, Duke of Devonshire, Mr. C. Turner; 4, Pizarro, ditto; 5, Selim, Mr. R. I. Lawrence; 6, Polyphemus, Mr. C. Spencer. *Feathered Byblœmens:* 1, Queen of the North, Mr. R. I. Lawrence; 2, Queen of the South, Mr. J. Hunt; 3, Friend, Mr. R. I. Lawrence; 4, Seedling, Mr. R. Headly; 5, Helen, Mr. Joseph Hunt; 6, Eliza, Mr. Joseph Hunt; *Flamed Byblœmens:* 1, Don Pedro, Mr. R. I. Lawrence; 2, Princess Royal, Mr. C. Turner; 3, David, Mr. Clarke; 4, Camarine, Mr. Lawrence; 5, Lord Denman, Mr. C. Spencer; 6, Princess Royal, Mr. C. Turner. *Feathered Roses:* 1, Madame Vestris, Mr. Lawrence; 2, Mary Lamb, Rev. S. Cresswell; 3, Heroine, Mr. C. Spencer; 4, ditto, Mr. Houghton; 5, ditto, ditto; 6, Heroine, Mr. C. Turner. *Flamed Roses:* 1, Lady Catherine Gordon, Mr. J. Hunt; 2, Triomphe Royale, Mr. C. Turner; 3, Aglaia, Mr. Lawrence; 4, Triomphe Royale, Mr. J. Hunt; 5, ditto, Mr. C. Turner; 6, Aglaia, Mr. Lawrence.

PREMIER PRIZES, SELECTED FROM THE WHOLE EXHIBITION.—*Feathered Bizarre:* Royal Sovereign, exhibited by Dr. Sanders, of Staines. *Flamed Bizarre:* Selim, exhibited by Mr. C. Turner, Slough. *Feathered Byblœmen:* Gem, exhibited by Mr. Thomas Allestree, Draycott. *Flamed Byblœmen:* David, exhibited by Mr. Betteridge, Abingdon. *Feathered Rose:* Mary Lamb, exhibited by Mr. Thomas Allestree, Draycott. *Flamed Rose:* Lady Catherine Gordon, exhibited by Mr. Joseph Hunt, High Wycombe.

Six Breeders, Dissimilar Blooms.—1st. Mr. Headly, with six seedlings. 2nd. Mr. C. Turner, with Juliet, Salvator Rosa, Princess Royal, Aide-de-Camp, Pilot, and Lady Stanley. 3rd. Mr. Joseph Hunt, with Willison's King, Maid of Orleans, Lady Stanley, Pilot, Countess of Harrington, and Juliet. 4th. Mr. Betteridge, with two seedlings, Pilot, Salvator Rosa, Juliet, and Sir Joseph Paxton.

BRIEF REMARKS, &c.

Hints on the Early Flowering of Seedling Plants requested.—I observed an article in a late number of your most useful and valuable Cabinet, entitled "Remarks on Hybridizing Plants, by an Amateur Florist," where he states that he directed his attention to the process *last season* with the "*Amaryllis*, *Achimenes*, *Verbena*, *Fuchsia*, *Phlox*, *Pelargonium*, and others;" and that now, *this season*, he has, "as the result, very numerous, and in almost endless variety, beautifully distinct flowers of the above, with the exception of the *Amaryllis*." It is, in my opinion, of great consequence to all, and much more so to those who hybridize plants extensively, to obtain the result of their labours as soon as possible, and ascertain what value and properties the numerous seedling plants may possess, as we may be, and in all probability are, crowding our houses with hundreds of the same kind, and more likely thousands of plants that are worse than those we have procured the seed from, and therefore not worth keeping; for I consider no seedling variety worth house room and trouble that does not possess properties, either in form or colour, to mark it as a distinct and acceptable variety from any other yet produced; for, during the last few years, we have seen the market inundated with all sorts of new flowers, many of them having no other recommendation than that they are new hybridized varieties, no attention being paid to whether they are better or worse than their parents. And as I have found from experience how difficult it now is, after the many beautiful hybridized varieties of all florists' flowers that have been sent out, to obtain a new plant that can recommend itself either for its novelty in fine form or beauty of colour, or both combined, the great object of every one who raises seedlings must be to have them to produce their flowers as soon as possible. Yet, notwithstanding all my care with seedling *Fuchsias*, *Pelargoniums*, and some others, I cannot induce them to flower until the second season, or about eighteen months after sowing, and sometimes longer. Under these circumstances, I should feel much obliged if your correspondent would favour me with a few hints to make my seedling *Fuchsias* and *Pelargoniums* flower early, as he has succeeded in flowering his of last summer's sowing. This year I am following out a plan with some seedling *Pelargoniums* which were sown last season, about the end of July, viz., having given them a cool greenhouse all winter, I have them now planted out *in pots* in the open border, where they are growing most luxuriantly, but as yet without showing any flower-buds. As the season advances, and before the cold weather sets in, I shall remove them to the greenhouse, where I expect them to flower before winter. I have also many seedling *Fuchsias* of last season's sowing, but none of them have any indication as yet, nor do I expect them, to flower this season. Thus the greenhouse must be occupied with seedling plants, which may turn out to be such as I would never think to occupy a border in the garden with in summer, far less crowding greenhouses with in winter, to the detriment of other and finer plants. So a few hints from "An Amateur Florist" will oblige, also, *An Amateur, Lincolnshire.*

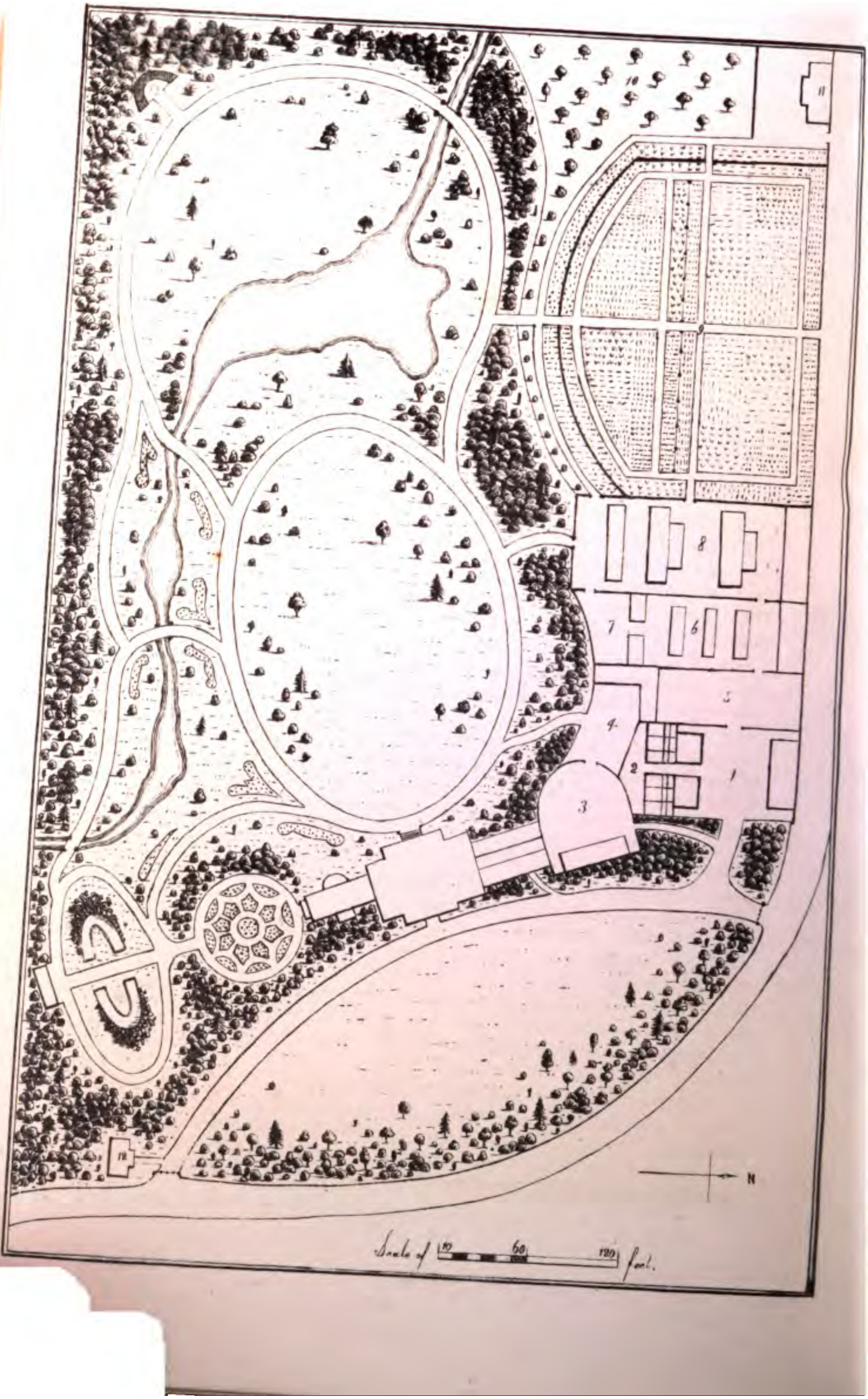
FLORAL OPERATIONS FOR AUGUST.

Flower Garden.—If the weather continue hot and dry, it will be highly necessary to administer copious supplies of water. This should be done towards the *evening* of each day, because the plants have then time to absorb the water gradually, and appropriate such portion as contribute to their well-being. It is only in extreme cases that water should be given in the morning, because it is then so quickly exhaled from the soil, as well as the leaves, that its refreshing and nutrimental properties are almost wholly wasted. A sprinkling overhead very early in the morning will always benefit the plants, by assisting them to sustain the hot and dry winds. Rain-water is best, or that from an exposed pond or tank. Where beds of plants have been repeatedly watered through a rose, the surface of the soil will probably have become *crusted*, and almost *impervious* to moisture; consequently, they ought to be stirred over occasionally with a small fork. A few annuals, as *Mignonette*, etc., may now be sown to bloom in the autumn, also biennials to bloom next year.

FLORISTS' FLOWERS.—*Auriculas* and *Polyanthus* should be kept in the shade. At this season of the year the plants are often attacked with green-fly; dip the plants in a solution of tobacco-water or size-water. *Tulips* will have perfected their growth, and should now be taken up. *Ranunculuses* will require to be taken up as soon as their foliage has become withered and dry. *Pinks* may still be piped. *Carnations* and *Picotees:* as the pods are fully formed and ready to open, secure them round with a ring of India rubber, gutta percha, or bass, to prevent their bursting on one side. When blown they should be shaded. Never suffer the plants to flag for want of water. Proceed with layering. *Dahlias* will require *thinning out* freely as they advance in growth. If sprinkled overhead with soft water late in the evening, with a fine rose or syringe, their luxuriance will be greatly promoted. *Pelargoniums* that have shed their flowers should be cut down, disrooted, and potted in smaller pots, keeping the plants for a week in a close frame, to assist them in developing their new shoots, and cuttings may be put in, one in each sixty-sized pot, or prick them in a border, and pot as soon as rooted. *Roses* may now be budded; moist weather being best for the operation. It is of importance that there should be a resemblance between the bud and the stock, as to the vigour of vegetative growth, in order to ensure a successful result. If a Rose of slow development is budded on a rampant brier, and all the strength of the latter is turned into the parasitical stranger, health cannot be maintained, nor will a freely vegetating Rose submit to be impeded in its progress by a sluggish stock. Thin away surplus branches from all stocks not budded as early as possible, and get the branches strong and healthy.

FORCING STOVE.—Where stove and greenhouse plants afford suitable cutting, propagation must now be pursued; as, generally speaking, it can be practised with the greatest success in the early rather than in the latter part of the year. It should be remembered that the propagation of most plants is facilitated by the employment of bottom-heat and bell-glasses. Stove plants will derive great advantage from a partial shading during the glare of the day, and will be less liable to injury from drought. Many plants will require shifting, such as *Justicias*, *Clerodendrons*, etc. Give plenty of water at the roots, syringe often in the evening, and keep the floors of the house and every part damp, to assist in maintaining a humid atmosphere. Bulbs of *Amaryllis*, etc., should be put together in a pit or frame, where they will be near the glass, and where the influence of the sun, with a gradual diminution of water, will mature them. Never permitting the foliage to flag is a good criterion as to the quantity of moisture plants require; keep as near that state as possible.

GREENHOUSE, ETC.—As a free ingress of air must necessarily be permitted during fine weather, its rapid circulation, conjoined with active solar heat, must cause a rapid evaporation both from the plants and soil; hence there exists a necessity of watering and syringing frequently. Encourage the growth of *Azaleas* and *Camellias* by keeping them comparatively close (with shade during sunshine), and supplying them liberally with moisture administered by the syringe. Propagate *Roses* by cuttings from those plants which have been forced, and place the plants in a rather shady situation, in order that they may have a period *of rest* for a few weeks. *Calceolarias* that have ceased blooming should be repotted; cut off dead tops, place the plants in a situation where they can be *shaded from hot sun*, admitting it morning and evening, and seed should be sown, so as to have the plants strong, to endure winter; such will bloom *next season*, and be much *more vigorous* than plants raised from *cuttings*. *Cinerarias* also that have done blooming should have the tops cut off, and be fumigated in a close frame, as they are often affected with green-fly; after which the plants should be turned out of the pots, and planted in a somewhat shady bed of good soil; in the garden, also sow seed now; the young plants will bloom early next spring. *Epacrises*, *Ericas*, etc., now done blooming, may be cut in, to render them bushy. *Chrysanthemums* should *now* have the leads stopped, to cause the production of side shoots, and make the plants *bushy* and dwarf. Greenhouse plants placed in the open air in pots should have occasional waterings at the under side of the foliage, to destroy or keep down red spider and green-fly, with *weak size* or *glue* water, and often with pure soft water.



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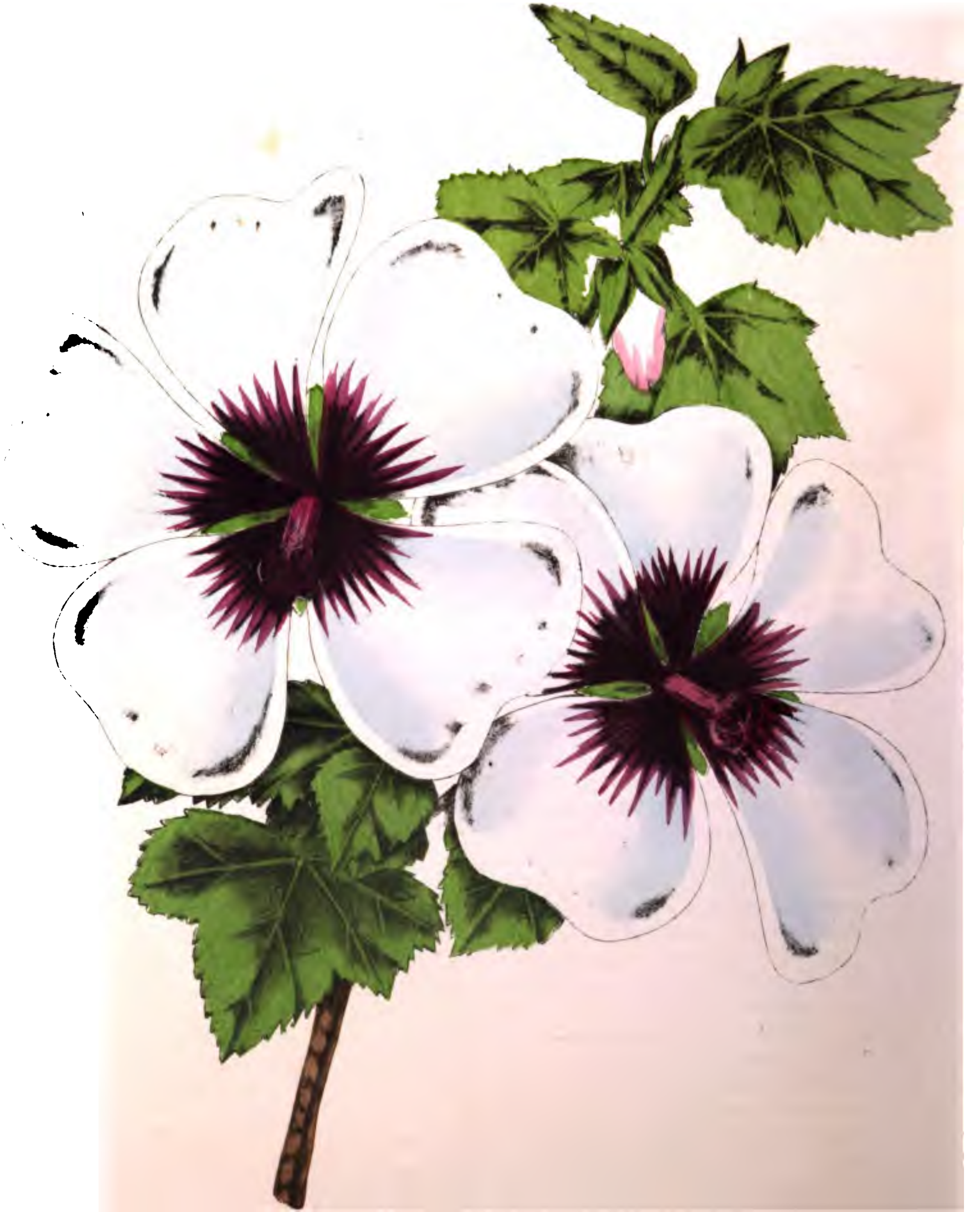


LAVATERA MARITIMA.

The Floricultural Cabinet.

SEPTEMBER, 1855.

ILLUSTRATION.

LAVATERA MARITIMA.—TOURNEFORT.

A CELEBRATED physician, and professor of botany in the King's Garden at Paris, from 1686 to 1708, formed this genus, and named it in honour of his friends the two LAVATERS, famous physicians and naturalists of Zurich. Previously the species had belonged to the genus MALVA, *the Mallow*, which is one of the orders of the *natural system* of botanical arrangement, viz., MALVACEÆ. This name *Malva* is by some said to be derived from the Greek *malache*, soft, which comes from *malacho*, to soften; in allusion to the softening and laxative properties of the plant. We read in the Holy Scriptures (Job, chapter xxx., verse 4) "Who cut up mallows by the bushes, and juniper roots for their meat;" from which we learn that the mallow afforded food in early times to those wandering tribes that pitched their tents in the wilderness.

It is supposed by others that the name is derived from the Hebrew, in which language it is called *Malluach*, from its saltness, *malach* being the Hebrew word for salt; and GERARD says, "I am persuaded that the Latin word *Malva* comes from the Chaldee name *Malluach*, the *ch* being left out for the good sound's sake."

The Greeks and Romans ate the Mallow both boiled and raw in salads, so do the Chinese; and we are informed that a *tree* of the Mallow furnishes an abundant supply of food to the Egyptians. The *Mallow*, in *floral language*, is made the emblem of a sweet or mild disposition, hence it formed one of the funeral flowers of the ancients, and it became customary to plant it, along with the *asphodel*, around the graves and tombs of departed friends.

The natural order *Malvaceæ* contains many genera of very ornamental and beautiful flowering plants, as the *Hibiscus*, *Abutilon*, *Malva*, *Pavonia*, *Malope*, *Althæa*, *Hollyhock*, *Lavatera*, etc.

The very handsome and highly ornamental *Lavatera* we now figure is a native of the south of Europe. It is an evergreen shrubby plant, and where permitted forms fine bushes from three to five feet high, and as much across, blooming in great profusion. It will flourish constantly out doors in the warmer parts of Great Britain and Ireland. It will also flourish in the coldest parts during spring and summer, then be taken up and protected in a cool pit frame or greenhouse during winter. It flourishes when grown either in the open bed or border, as well as when trained to a wall or trellis. Small plants in pots bloom very freely, and are very showy in the greenhouse. It blooms from the beginning of May to the end of summer, when properly treated, and it merits a place wherever it can be grown. It requires a dry substratum and a good rich light loam.

REMARKS ON THE DAHLIA.

BY T. RUTGER, ESQ.

It would appear that plants like animals have only their day, and that even races as well as individuals, in the course of time, pass off from the stage of existence. Some of your readers and correspondents may recollect when the Dahlia was introduced into this country—according to Loudon, as early as the year 1789—there was a species which found its way from Mexico, under the name of *D. superflua*, and five other species are enumerated, in his "Hortus Britannicus," as being introduced in 1802; but it would appear that they were not much sought after for some years, as I remember that a friend of mine, in the year 1815, purchased a plant of what was then called the *D. fulgens*, for which he gave a guinea, and as it was then thought tender as well as scarce, it was planted in the conservatory, where it attained the height of eight feet, with flowers scarce and diminutive, plainly showing that the plant was not in its *proper element*. The following year it was planted out of doors at the latter end of May, where it did well, and flowered to perfection; but it will be remembered that the flower was single, as were also the flowers on its congeners, namely, the *aurantia*, *lutea*, etc. The colour of the flowers of the species above alluded to was approaching to orange, the *fulgens* carrying the palm.

Now the above species will, I think, be allowed to be a different race altogether from the Dahlia now grown, as in their habits they were exceedingly dissimilar; whether or not it ever received a different name, implying a different *genus*, I do not know, nor have I for many years seen any of the race growing, which makes me almost conclude that it is extinct, at least in this country. If it be otherwise, I should be glad, through the medium of the Cabinet, to be corrected, with any observations connected with the subject which may be interesting.

About the above time alluded to (1815) my friend procured a plant of the present existing race of Dahlias; it was a *double purple*, but by no means an elegant flower. The colour was dingy, and the petals not well formed, the plant was also coarse in its habits; however, seeds were preserved from it, and sown the following year on a slow hotbed. Many of the seedlings were left in a group, and among them one produced a *double*, and beautifully formed purple flower, the petals were nicely cupped, and altogether it was considered a *first-rate* article. The foliage also recommended itself as being unique and handsome. The following year I sent a plant of it to the Hammersmith Nursery, under the name of *D. purpurea superba*, and from thence it of course got extensively distributed; however, soon after many other double varieties were raised, and the one above alluded to was, I suppose, soon lost sight of among the numerous competitors which quickly made their appearance.

Many handsome varieties since the above date have been raised and admired, but supplanted by others excelling in their approaches to a perfect flower; but how frequently soever individuals may pass away to make room for others, I should hope the race will be preserved, as for an autumnal flower it stands *unrivalled* in the opinion of many.

GERMINATION OF SEEDS.

BY A PROFESSOR OF BOTANY, IN NORTH BRITAIN.

THE subject of the present essay concerns a new method of furthering the germination of seeds, in which I have made some experiments, which I think may be beneficial if better known; and for the proper understanding of which it will be necessary to preface the subject by a short explanation of the theory of the reproduction of plants. In flowerless plants (the class Cryptogamia of botanists) reproduction takes place by means of homogeneous masses of cellular substances, called sporules or spores; in ferns, on the back of the leaf; in mosses, in small capsules or urns; and in lichens and fungi, from tubes buried in the substance of the plants. Unlike the germ of flowering plants, they contain no cotyledon, radicle, or plumule; and instead of growing uniformly from two constant points of their surface, they are mere masses of cellular substance, and send forth their roots from whatever place happens to have been covered, and the stem from that portion exposed to light. In the more simple forms of fungi and lichens the subject is involved in such mystery, that many have thence contended for equivocal generation, or a common matter of vegetation, which issues into various forms, according to accidental circumstances. It is, however, more consonant to observation, and to the method and wisdom displayed by the Creator in those parts of his works more tangible to our senses (especially when we take into consideration the millions of millions of sporules contained in a single fungus, as the common puff-ball, or the many hundreds in the common blue fungus of the cheese), to suppose that they are reproduced by myriads of microscopic pores floating in the atmosphere, dispersed by currents of air, and only called into existence when the accidental circumstances of moisture, putrefaction, etc., necessary to their development are present.

In flowering plants reproduction takes place by means of the germ or embryo contained in seeds, and in the tubers and bulbs of the root. In the seed, the germ developes into radicle or root, and plumule and stem, between which is an axis connecting the two, and communicating with the cotyledons or seed-lobes, which contain the food destined to nourish the young plant till able to extract nourishment from the ground for itself. A deposition of this food is likewise laid up in the cells of the bulb or tuber, and to it the general name of albumen, from its fancied resemblance in functions to the white of an egg, has been given. It is generally enclosed in a hard or bony case, for protection from injury (but which is not necessary to the growth of the germ), and consists of mucilage or gum, sugar, and fecula or starch, which are all convertible substances, consisting of different proportions of carbon, hydrogen, and oxygen, which, by chemical analysis, have been found to stand as under, viz.—

	Carbon.	Oxygen.	Hydrogen.
Gum to consist of	42·23	50·84	6·93
Sugar - -	42·27	50·63	6·90
Starch -	42·55	49·68	6·77

By the continued deposition of carbon, very ripe seeds and tubers contain more starch or flour than unripe seeds; and from the difficulty of reducing starch again into mucilage, which must take place in the vegetating process, before it can be rendered a soluble food for the young embryo, ripe seeds will be found to keep longest, and to survive accidents of bad treatment better than unripe seeds; which, however, from having their food in a state more easily rendered soluble, are found both in seeds and tubers to spring more quickly, and if sufficiently far advanced, with more vigour, than ripe seeds or tubers. In the process of germination, when carried on in the usual manner, if a seed is picked up, the cotyledons will be found filled with a soft mucilaginous substance, generally of a milky colour and sweetish taste. This is the food of the young embryo reduced into a soluble state, and is conveyed through the vessels of the cotyledon to the axis, and thence to the radicle and stem. On the quantity of this food furnished depends the vigour with which the young plant will shoot; and hence the best means of reducing the albumen of the seed or tuber into a soluble food in the speediest manner, and in the greatest quantity, is the greatest desideratum to arrive at in prosecuting our inquiries after the best method of furthering the process of germination. The starch and sugar must be reduced to mucilage; and from an inspection of the table, it will be found necessary that carbon must be abstracted, and oxygen and hydrogen added; and accordingly it is found that in germination carbonic acid gas is given off, the air is deprived of part of its oxygen, and water, yielding hydrogen and oxygen, is absorbed. Air, heat, and moisture are all necessary, and likewise the exclusion of light. The air yields the oxygen necessary in abstracting the carbon, in the state of carbonic acid, from starch, and converting it into sugar and mucilage, which may be familiarly illustrated in the sweetness of malting grain and germinating potatoes. A heat of 160 degrees is required to reduce starch to solubility; and it is not generally known how such heat is usually acquired. The disengagement of the oxygen sets caloric free, and hence seeds moistened and thrown into a heap to germinate are found to generate a great heat. Alkalies are also found useful in furthering the process, and are generated whilst it is going on. Perhaps, also, the starch is more soluble in its state of combination than when extracted; and, to all perceptible causes, we must add that vital energy so everywhere necessary, and so little known.

In soils which have been properly prepared, by being broken into very small particles, confined air is generated, which so increases the heat as to be perceptible even to the touch; and hence the benefits of well-pulverized ground, and of covering with pieces of glass, and flower-saucers, etc., to increase the heat and retain the moisture, and thus further greatly the vegetation of the seeds; and hence the different quantities of heat and moisture requisite for seeds, according as they are dry and farinaceous, or oily and mucilaginous. Very dry farinaceous seeds, as the Acacia, and others of that tribe, are benefited by immersion in boiling water; and hence the reason why either heat or moisture of itself is not sufficient, and even hurtful if carried to excess, either in the germination of seeds or the bud or embryo of the tuber of the potato, as lately illustrated in the three last consecutive springs, in which, from the drought and heat acting on the substance of the newly cut tuber, without the advantage of moisture, the albumen has not been reduced into a soluble food, or in such small quantities as not to be sufficient to produce the development of the bud or shoot.

I now come to that part of the subject where, from the explanation already given, I hope it will be in my power to explain the reasons why I was induced to try the experiments I set out with taking notice of, and which I hope will be found, on proper trial, to be very beneficial. It is to seeds damaged by being too long kept in a dry state, or hurt by too much fire heat, or heat of the sun, that my attention has been principally directed. It has been often recommended to apply substances readily yielding oxygen; and I have myself tried oxalic acid frequently, but without any perceptible effect; and from experiments lately instituted, it appears that more than the quantity of oxygen, or about one-third contained in common air, is not beneficial, though this proportion is absolutely necessary.

Experiments lately made by Mr. Charles Maltuen, and narrated in *Brewster's Journal of Science*, showed that the negative or alkaline pole of a battery caused seeds to vegetate in much less time than the positive, and he was thence induced to experiment on seeds in glasses filled with acetic, nitric, and sulphuric acids, and also in water rendered alkaline by potash and ammonia. In the alkaline the seeds vegetated in thirty hours, and were well developed in forty; while in the nitric and sulphuric, they took seven days; and even after a month they had not begun to grow in the acetic acid. The great benefit of the alkalies in hastening the germinating process being thus so apparent, I was induced to experiment on lime; a very easily procured alkali, and which I reckoned to be more efficient than any other, from the well-known affinity of quick, or newly slacked lime for carbonic acid. Lime, as taken from the quarry, consists of carbonate of lime, or lime united to carbonic acid, and, in the act of burning, the carbonic acid·is driven off; and hence the great affinity of newly slacked lime for carbonic acid. I depended therefore on this affinity to extract the carbon from the starch, assisted by moisture in aid of the heat disengaged in this process, and also in the above well-attested effects of alkaline substances in hastening the process of vegetation; and in the spring of 1835, having a quantity of old spruce fir seed, I was determined to try the experiment.

It is well known by nurserymen that the seed of the spruce fir will scarcely vegetate the third year, although kept in the cones; but, in the present instance, the seed had been out of the cones during all that time; and the year before, or second year of the seed, had been so weak, that although well damped, and sown a great deal thicker than usual, in a favourable state of the weather, and in ground in good condition, still it came through very thin, yellow in the colour, so weak as scarcely to be able to free its cotyledons from the ground, and not producing one-third of a crop. Thus, under ordinary circumstances, after keeping the same seed a year longer, we had little reason to think it worth sowing. I, however, caused the seed to be well damped a few days before sowing, and then added slacked lime, the influence of which was not long in being manifest. The year before, when the two years old seed had been damped, it swelled none, but acquired a mouldy smell; on the contrary, the third year, after the quick-lime had been added, it swelled off plump and full, and had all the sweet smell of fresh germinating seed. It was sown very thick, but the plants started fresh and vigorous through the covering of soil, of a dark green colour, and in such quantity as to produce a crop much thicker than usual; and the plants grew and throve as well as in the first year of the seed. I tried the same experiment this year, but, from the unprecedented long-continued dry weather, it had not a fair trial; although, however, four years old, the crop is still about the same thickness as some fresh Scotch pine seed sown on the same day beside it, and the plants equally strong. I tried it on some magnolia seed, the seedlings of which have this year grown with more than their accustomed vigour. As the whole of the plants may be seen, for very little trouble, in our nursery grounds (at Kilmarnock), and as the good effects, I think, have been made apparent, I hope it will not be considered trespassing too far on your time to give a detail of the method I would like pursued. Let it be understood that the nature of the experiment applies only to seeds in which the albumen has become hard and dry, from long keeping, kiln-drying, exposure to a hot sun in crossing the equator, etc., and not to such as have been wasted, and the albumen destroyed or damaged by moisture, heating in a green state, etc., or when it is wanted to hasten the ordinary process of vegetation in seeds that are tardy. Let the seed to be experimented on be spread on a floor, or in a box or saucer, according to quantity, and thoroughly damped (more or less according to the nature of the seed, as to its naturally dry or oily condition); let the whole be well mixed together so as every seed may receive its proportion of moisture, from one-eighth to one-tenth of the bulk; and mix the seed again well, so that each may receive its proportion of lime; lay it up in a heap, and when it begins to get dry, have it turned and mixed, and again damped; and continue this process for a longer or shorter time, according to the known habits of the seed as to speediness in vegetation, observing not to let it lie long in a dry state, in which the lime is rather prejudicial; and I feel confident, if these instructions are attended to, the result will be beneficial. Before quitting the subject, I would like to call attention to the immense use of alkalies in the vegetable economy. We have seen their use in furthering the germination of seeds; and lately has been narrated in our newspapers the good effects of quicklime sprinkled over the newly cut tubers of the potato: but it is in preparing the food of the plant, or in rendering manure into a soluble food for the plant, that their greatest benefits are to be found. The different constituents of plants (starch, sugar, mucilage, and ligpine, or fibrine) are all composed of various proportions of carbon, hydrogen, and oxygen. The water absorbed by the root yields hydrogen and oxygen; and carbon being the only substance thus wanted, it has been tried to afford it, by exhibiting to the spongioles of the root carbonic acid gas in its pure state: but its quantity has always been undiminished, until mixed up with alkalies in a saponaceous matter, in somewhat of the proportions found to exist in manures of the kinds most beneficial to plants.—*Kilmarnock Journal.*

CULTURE OF LILIUMS.

BY A NORTH-COUNTRY FRIEND.

Lilium is a genus comprised of bulbous-rooted perennial plants; it belongs to the sixth class *Hexandria*, and the first order *Monogynia;* it also ranks in the natural order of *Liliaceæ*, and is divided into the following sections:—

Section 1st contains—Lilium candidum, Common White Lily;

L. Catesbæi, Catesby's Lily; L. bulbiferum, Bulb-bearing or Orange Lily.

Section 2nd contains—Lilium Japonicum, Japan Lily; L. pomponium, Pomponian Lily; L. chalcedonicum, Scarlet Martagon Lily; L. superbum, Superb Martagon Lily; L. tigrinum, Tiger Lily.

Section 3rd contains—Lilium Camschatense, Kamtschatka Lily; L. Philadelphium, Philadelphian Lily.

Section 4th contains—Lilium Martagon, Purple Martagon Lily; L. Canadense, Canadian Martagon Lily.

All the species and their varieties are capable of being increased by planting offsets of the root, and by seed, to obtain new varieties. Their roots afford plenty of offsets every year, and may be taken off *annually*, but *once in two or three years* is better, unless they are more immediately wanted. The proper time for this operation is *autumn*, when the flowering is over, and the stalks decayed, either by separating the offsets from the mother bulb, which remains undisturbed, or by taking the whole of the bulbs up and separating all the offsets, small and great, from them; the small offsets being *then* planted in beds a foot asunder and three inches deep, to remain a year or two, and the large bulbs planted in the borders again singly; the offsets in the nursery beds, too, having obtained size and strength for flowering in perfection, may be planted out where they are wanted to bloom.

Sowing of the seed is chiefly practised with the Martagons, in order to obtain new *varieties;* it must be done in autumn, soon after the seed is ripe, in pots or boxes of light rich sandy soil, placing the pots in a sunny sheltered situation all winter, refreshing them at first often with water. The plants will appear in the following spring, about April; then remove them to where they will receive *only the morning sun* during the summer, giving moderate waterings in August. The bulbs should be transplanted into nursery beds in flat drills, an inch deep, and three or four inches asunder, when, as the bulbs will be very small, scatter the earth and bulbs together into the drills, covering them with earth to the above depth, and after having grown in this situation till the August or September following, they should be transplanted into another bed, placing them eight or nine inches each way asunder, to remain to show their first flowers, after which they may be finally planted out into the pleasure-ground borders, beds, or flower gardens. Seedlings of the other sorts may be raised the same way; and in order to obtain *new varieties*, impregnation of the different kinds must be duly attended to when their blossoms are in due perfection. The *bulb-bearing* kinds may also be increased by the little bulbs which are produced at the *axils of the leaves*, without taking up the bulbs; this is the case with the *Tiger Lily*, etc. The same method of planting and general culture answers for all the different sorts.

The most proper time, as has been already noticed, for planting and transplanting the blooming bulbs is in autumn, when their flowers and stalks have decayed, which is generally about September, the bulbs having then been at rest for a short space of time. If required, however, the bulbs may be kept out of ground till October or November; the *White Lilies*, however, *do not succeed well* if kept long out of the earth, and all the others are better when planted again as soon as possible. They must always be planted *singly*, as they soon increase by offsets into large bunches, disposing them in an assemblage in different parts of the borders, and towards the fronts of the principal shrubbery clumps; placing them about four inches deep, and at suitable distances from one another, judiciously intermixing the different sorts, planting some forward and others more backward, to effect the greater show and variety. Some may likewise be planted in different beds by themselves, twelve or fifteen inches asunder, either of several sorts together, or each kind in distinct beds, or be arranged in separate rows of a sort.

After being planted out, few of the sorts require any particular culture, as they are capable of bearing all weathers at every season. It is necessary, as some of them run up with pretty tall slender stalks, to support them with sticks, so as to preserve effectually their upright position, by which their flowers will appear to the best advantage. Some of the more tender sorts, as L. Catesbæi, L. Japonicum, L. Canadense, and L. Philadelphium, should, however, be protected in severe winters, by applying tanner's bark, or some other similar substance, over their roots.

All the kinds, as has been said, should remain *undisturbed* two or three years, or longer, as they flower stronger after the first year, and having increased by offsets into large bunches, many stalks will rise from each bunch, so as to exhibit a larger cluster of flowers; it is, however, proper to take up the bulbs every four years at least, both for propagation and to disburthen the main bulbs, and give them room to take their proper growth in.

They are all valuable as plants of ornament, from the beauty of their flowers, as well as having a noble appearance. They are, of course, proper ornaments for the pleasure ground, and when the different sorts are properly intermixed, they effect a most elegant variety, succeeding each other in bloom for several months. When wanted particularly for *shady* or *close* places, the common White Lily, Orange Lily, and the common Martagons, are the most proper, as they thrive under trees. The Orange Lily also answers well in small gardens, in the midst of buildings in towns and cities. Besides planting the different sorts for the beauty of their flowers, many of the *stripe-leaved White Lily* should be placed towards the fronts of the most conspicuous parts of the bed or border, for the beauty of their leaves in autumn, winter, and spring, which, disposed alternately with the common White Lily, whose leaves are *entirely green*, produce a most striking effect.

The above Lilies flourish in a mixture of good rich loam and sandy peat, and must always have a dry substratum; it is also advisable at each replanting to have them in a new situation, or renewed soil. In dry seasons particular attention must be paid to watering the soil; for if the foliage once shrivel from drought, it soon perishes, and the plants become unsightly. I have found that a good layer of moss laid over the bulbs is very beneficial, keeping the bulbs cool and moist.

TREATMENT OF CAMELLIAS.

BY THE FOREMAN OF A LONDON NURSERY.

A correspondent having recently requested information on this subject, has induced me to forward you an account of the best mode of growing this very splendid tribe of plants.

Soil.—I never have the soil sifted, but broken well with the spade, this admits the water to pass through readily; whereas when the soil is finely sifted, it soon closes up, the water becomes stagnant in it, and renders it sour and unhealthy, unless a considerable portion of sand be added, which makes the compost too poor for the healthy growth of the plants. The following proportions of compost I grow them in most vigorously. To a barrowful of turfy loam, two years old from the time of paring from the pasture or common land, I add half a barrowful of well-rotted hotbed dung, half a barrowful of peat and leaf-mould, and a quarter of a barrowful of fine white sand, usually called Calais sand. This is suitable for plants of all ages.

Propagation.—This is readily done either by cuttings, layers, inarching, grafting, budding, or the seeds. The best plan of increasing any of the kinds is by inarching, being the most certain method.

Cuttings.—The single red for stocks to inarch upon is easily struck. Plants of other kinds raised from cuttings do not always grow so vigorously, as when they are inarched, grafted, or budded upon stocks of the single red. This kind producing a much greater proportion of fibrous roots than the other kinds do, consequently a greater quantity of food is received by the plant. The best period for taking off the cuttings is when the new shoots have reached their length of growth, and the wood is just become firm, then I cut them off horizontally, close at the place where they pushed from last; cuttings of this description are generally to be obtained about May, or early in June. Loam and white sand, in equal proportions, are suitable for striking in. The pots are always well drained; after inserting them tightly into the soil, they are placed in a cool frame for a week, and then plunged in a hotbed frame, or bark pit. When they have struck root, which is usually indicated by the pushing of new shoots, they are potted off into small pots, in the compost above named, and placed in a greenhouse or cool frame, where they can be shaded for a short time. As the plants advance in growth, they are repotted every year.

Budding.—This is done in the usual method of budding other trees. A bud is selected from a young vigorous shoot that has perfected its wood. After budding, the plants are placed in a gentle hotbed frame, turning the buds from the sun. When the stock begins to grow, the top is pinched off, to cause the sap to flow to the bud. When the bud has pushed an inch or two, the top of the stock is cut off about an inch above where it was inserted, cutting the stock in a sloping manner from the bud.

Grafting.—This is done by taking a scion and cutting a short tongue about three inches from the bottom, a similar tongue is made in the stock; after being fixed and tied, and clayed or mossed, where tongued together, in the usual mode of grafting, the bottom portion of the scion is placed in a suspended phial filled with water; this is supplied regularly afterwards, and it affords a considerable support to the scion, and assists its union. The plant is placed in a gentle hotbed frame, or moist plant stove. When the graft has pushed two inches, the head of the stock is cut away similar to those budded.

Inarching.—This is the best and generally adopted method. Just before the plants begin to grow in April or May, this operation is performed. Young stocks about a quarter of an inch in diameter are placed around a plant, and after cutting a *small* portion from the branch and from the stock, in order to place them firmly together, a very short tongue is made in each, and after fitting they are tied tightly together, and a little moss is bound over each part, and afterwards kept moist. When the scion has pushed a little, it is cut about half-way through, and in a fortnight afterwards cut clean away from the parent plant, and soon after the head of the stock is cut away near the place of union.

Increase by Seed.—This is obtained from the single and semi-double flowers, the former for stocks to work upon, and the latter for obtaining new and desirable varieties; or, in case nothing new is raised, still the plants do for stocks. The seeds usually require to remain two years before they vegetate; occasionally they will strike the first season. I place the seed in a cool frame the first year, and a hotbed frame the second. When the young plants are two inches high I pot them off singly into small pots, place them in moist heat for a week or two, and then take them into a greenhouse.

When the plants raised by any of the above methods have grown a foot high, I pinch off the top bud of each of the leading shoots, a leader is afterwards retained to each, and the plant is permitted to grow as high as required; but attention is constantly paid to stopping the lead, as also lateral branches, so as to keep the plants bushy.

Repotting the Plants.—In shifting the plants, I always give a pot two sizes larger, so that there is about an inch clear all round the ball. The balls are left entire, excepting *patting* them gently with the hand round the sides, so as to loosen the ends of the fibrous roots. An inch deep of drainage is placed at the bottom of each pot; this attention is very essential. I have sometimes raised moss for the purpose, which answers well. *The time of potting is always performed when the plants have ceased blooming.* The plants are then placed in a stove of about sixty-five degrees of heat by night, and seventy by day. When the new shoots have ceased growing, the heat is increased to seventy-five by night, and eighty by day; this causes the shoots to produce a profusion of flower-buds, which will also be plumper than if not thus attended to. The young shoots are not allowed to grow till they become firm, before the heat is increased, but this must be done *immediately* on perceiving that they have ceased to grow longer. I keep them in this situation for about a month, and then gradually inure them to the greenhouse, and finally to the open air, where they are kept till wanted to flower in the autumn or early winter, or housed in October, for blooming at the usual season in spring.

When I place the plants out of doors, they are put upon a bed of coal-ashes or sand, six inches deep; this prevents worms entering into the pots.

The Camellia, like the Orange, likes frequent syringing over the tops. From this a considerable quantity of nutrition is imbibed, by keeping the pores open. In watering the soil, this is never done till it is perceived they are *becoming* dry; then a plentiful supply is given, the water being about the temperature of the situation where the plants are. When the plants are in blossom bud, if they are allowed *once* to flag, the buds are almost certain to drop, particularly those most advanced to a state of blooming. The bud will not generally fall off then, but having received damage at the centre of it, it will be found, on examination, even if it remain on the plant till near expansion, that the centre is decayed. If the plant be kept saturated with water for a short time, this will damage the buds and cause them to drop. This damage is often sustained if there is not a good drainage in the pot, or if the soil be very fine and adhesive. A sudden transition from a low temperature to a very high one, or the contrary, from heat to cold, will also damage the buds, and render them liable to drop.

When a plant becomes too high or straggling, it may be safely cut in; this I always do when it has done blooming. I then place the plant in an increased temperature to cause it to push. When I see the buds pushing, I then repot it into a larger pot. This is a much better plan than repotting at the time of cutting in, for when both operations are performed together, the plant is sometimes so affected as to die, or only partially to push shoots; but by the method I practise I never had the least defect occur to a plant.

The brown scaly insect sometimes attacks the Camellia; this I rub off, and wash the plant with soapsuds and sulphur. When the green fly attacks the ends of the shoots, I apply a sprinkling of diluted tobacco-water. The red spider seldom attacks the plant, but a forcible washing with the syringe, at the under side of the foliage, destroys this insect.

As the Camellia will flourish, whether grown in a stove, conservatory, greenhouse, cool frame, sitting-room, or in the open air, as freely as a common Laurel, and all the kinds being splendid flowering plants, I hope my remarks will not only lead to a more extended culture of this magnificent and showy genus, but, if strictly followed, I am confident, to a most successful mode of culture.

PREPARING BEDS FOR THE GROWTH OF FLOWERS.

BY A NOBLEMAN'S FLOWER GARDENER.

In situations upon lawns, etc., a profuse bloom is a most desirable object, and in order to effect that the best tillage is essential. For all strong-rooted plants, such as Pelargoniums, Fuchsias, Salvias, Calceolarias, etc., the bed should be half a yard deep, at least, of good unctuous, but not binding, loamy soil. The fleshy kinds of plants, as Lobelias, etc., delight in rotten leaf-soil mixed with loam, and the fine hair-like plants, as Heaths and American shrubs, require what is termed heath-soil, with a portion of light fibrous earth. When the beds are first formed, this preparation will do for two or three seasons, with the usual supply of a portion of well-rotted manure to the loamy and leaf-mould beds. What, however, is most essential to the promotion of a fine display of flowers is, that after this period there should be a yearly removal of a portion of the soil from the bed, and an addition of fresh, of the character each bed requires, whether loam, vegetable, or heath-soil. Manure alone may stimulate to vigour, but the fresh soil gives a richness of verdure in foliage, and colours in flowers, that the former cannot produce, besides a much greater profusion of bloom. I have had twenty years' practice as a flower gardener in one of the first-rate establishments in England, and experience has annually confirmed the advantages of such attention in a suitable soil. The best method to pursue is yearly to obtain, in winter, a proper quantity of fresh turfy soil from the meadow, and heath-soil from the moor, etc.; to have it laid up in heaps fully exposed to the weather, where it may receive sun, air, and rain. This being mixed up, as laid at first, with about one quarter of rotten horse-dung, and when for Rose-beds cow-dung is an excellent provision, to reinforce the beds with. This attention will most amply repay by the beauty it effects. I am confident if persons will but give it a trial once, they will not regret, but be induced to continue an annual interchange of the soil. I must not omit to state that in all cases there must be a dry substratum; if it is not naturally so, it must be formed of broken stones, pieces of bricks, etc.

PROPAGATING THE TREE PÆONY.

BY MONS. MAUPOIL, OF DOLO, ON THE BRENTA, IN ITALY.
AN EXTRACT BY CLERICUS.

In the month of April I take off (close to their origin) the young shoots which show for flower, at which time they are about five, six, or eight inches long. After having stripped off most of their leaves, and cut off the flower-bud, I plant them in a northern aspect, and cover them with a frame and a bell-glass. The next day I water them; but as the situation is, of course, moist, the waterings need not be frequently repeated. Great care must be taken to prevent the growth of moss, and therefore it is desirable to give them a little air occasionally from sunrise till seven or eight o'clock in the morning. By the following month of October they are well rooted, and they may then be planted out, or left where they are, if they have sufficient ground-room. By this method I do not lose above one cutting out of twelve. Experience has taught me that the young and vigorous shoots which have no flower-buds do not strike so well; and the reason seems to be that the suppression by the flower-bud causes an increased determination of sap to the base of the cutting.

COMPOST BEST SUITED TO SUCCULENTS.

BY AN AMATEUR GARDENER.

By this title may be understood an immense tribe of plants formerly considered tenants of the dry stove, but now found to be more hardy than the Geranium. But it is proposed to restrict this inquiry to the *Cacteæ,* as sufficiently comprehensive for the present purpose.

There are many persons now living who may remember the time when our greenhouses or stoves could exhibit few specimens of the Cacteæ, except the common creeping Cereus, the Melon, and Torch Thistles, and the Indian Fig. Now, however, the case is widely different; for such has been the success of collectors, and so great is the facility with which the genera are propagated, and varied by cross impregnation, that it would be vain to attempt a list of species and almost endless varieties.

Having, then, so much choice among a selection of surpassing beauty, it becomes an object of consequence to determine pretty accurately the soil that will generally succeed with all the varieties: but herein, as almost always happens, cultivators are at variance; yet, as I do not pretend to dictate, and ever desire to "let well alone," I shall be content to allude to what I have seen and heard.

Formerly it was the custom to make pretty free use of old mortar scraped from bricks or walls, incorporated with loam; then it was roundly asserted that good, soft, or *sandy loam*, mixed up with fragments of broken bricks, formed the most healthy bed for the roots. Other writers, and practical gardeners, got rid altogether of lime rubbish, and retained but little loam; they advised, and many now use, the best or richest "peat," as peat-mould is called, with rotten manure, and give water freely, in the growing season, with liquid manure.

Be the soil what it may, certain it is that it should be pressed *firmly around the roots* with the hands, till the ball be solid and compact; and little or no water ought to be given between October and April, during which period *frost of two or three degrees* will little affect the plants; good drainage is also most essential.

But I am sure that the herbage of Cacti (if so it may be called) is greatly affected by the soil. In some collections one observes the tint of almost every plant to be a dull, brownish-green, and the texture flaccid; in others, it is of a full deep verdure, with every appearance of vigorous health. Conversing on this subject with a very successful grower, one who had pre-eminently beautiful specimens of *Epiphyllum truncatum* grafted upon *Pereskia aculeata*, I was told that "loam spoiled all the Cacti, and turned the plants brown." My experience for years tended to confirm this observation; but time has not been given to confirm the truth of another remark, which I thus communicate, that your readers may experimentize for themselves. My friend said, "Take equal quantities of very *old black manure*, and of the strongest lime rubbish from old walls, the older the better; mix them thoroughly, and add about one-sixth of unctuous loam. In this compost your plants will recover colour, *be always green*, and bloom abundantly." At all events, my informant's plants make good his words; and we shall attain the present object if this paper excite the notice of observant and candid horticulturists.

THE BEST SEASON FOR TRANSPLANTING TREES, SHRUBS, ETC.

SUBSCRIBER. Which season do you prefer, spring or autumn, for transplanting trees? You have had some experience in this matter, and as I find my neighbours differ much in their opinions, I am anxious to have your advice.

EDITOR. It is true there are various opinions upon this matter. Many men, indeed a greater portion of those who give such advice, sometimes rather dogmatically, never planted more than a dozen trees, and those not more than once or twice in their lives—when, perhaps, making their garden around their dwelling—and as they, of course, chose the season they thought the best, whether autumn or spring, they advise all to do as they did. Their evidence is *ex parte*; for they never took hold of the thing experimentally—planting fall and spring for a series of successive years; the only way to test such a question.

Sub. So I should think; but I find, too, people not only differ as regards the general season of planting, but as regards the kinds of trees suited to the season.

Ed. Yes. I am aware of that: one cultivator states that he prefers the spring for all kinds of trees; another, that he prefers the fall; a third prefers the fall for everything except peaches; and others would set out everything in the autumn except *stone* fruit.

Sub. True; and it is for this very reason that there are so many opinions that I wish to know which season you prefer, and, if not too much trouble, to give the reasons that have guided you in your choice.

Ed. Willingly. It is a rule we have always adopted in our horticultural operations, never to do anything unless it can be justified upon some *principle*. This hap-hazard kind of gardening—doing what others have done before us—or following the advice of every writer who gives his year's experience to the public, is what we never practise, unless accounted for on good and sound reasons.

Sub. I have not read your Magazine without learning that long ago, and therefore ask the question in regard to transplanting trees; for, beyond the mere *ipse dixit* of the many that the fall or the spring is best because *it is*, I have been unable to learn why one season is better than the other, or why both are not good alike.

Ed. You will bear in mind that winter often leaves the ground in such a wet and sodden state that transplanting cannot be well done for some days, and frequently a fortnight is as good as lost. While in the autumn the ground is dry, loose, and friable, and the operation of transplanting can be done in half the time—and infinitely better too—than it can in the spring.

Sub. True enough. This condition of the soil in autumn never occurred to me; its wet state has always kept back my work in spring. Then I understand you to say you would plant both fall and spring.

Ed. Yes, both.

Sub. But you do not mean to say you have no preference of one over the other?

Ed. Certainly not. You have not heard me through. My object is to show that if autumn planting is no better than spring, or even not as good, it is necessary that a good deal of it must be done then where large quantities are to be set out. I decidedly prefer the autumn for transplanting all hardy trees of any size.

Sub. Go on.

Ed. Autumn planting is better than spring for the following reasons:—

1st. The time is longer than the spring. 2nd. The ground is in better condition. 3rd. The trees are then in the most dormant state. 4th. The roots, where cut, heal better, and are prepared to send out fresh ones even before the frost is out of the ground. 5th. The winter and spring rains settle the earth around the roots.

6th. The trees are well established before warm weather overtakes them.

SUB. These appear satisfactory reasons, and based on sound principles; but I should be glad to hear you state whether you would transplant in the autumn without reference to soil or locality.

ED. Not by any means. There are soils and situations where autumn planting might be injurious; but then these are not likely to occur: for that soil which will not admit of transplanting in the autumn is entirely unfit to grow a tree, at least with expectation of producing fine fruit; and therefore there is little necessity of making any such exception in our rules. We are presuming that the object of every planter of fruit trees is to get good fruit. It cannot be done in a soil or situation *too* wet and cold to set the trees out safely in the autumn. It is somewhat different with forest trees; as it is often an object to plant up some low, cold piece of ground, needed for shade or shelter. *In that case* only, the spring would be the preferable season.

SUB. I appreciate the truth of your remarks, and agree with you that no tree ought to be planted in a soil which cannot carry it safely through the winter. But is there no danger of winter killing the shoots or trunk, even in favourable soils? such is the general complaint of spring planters.

ED. Not the least: that is, no more than if the tree had not been removed. If the tree is in good health when set out, it will receive no more injury than it would have done standing in the nursery row. We have known severe winters to kill some kinds of young pear trees to the ground: if set out previous to such a hard winter, they might be injured; but we do not think their liability to the danger increased by removal.

SUB. That is just what I wish to learn: your experience extends over many years, and through a series of variable winters, which should enable you to judge correctly of their effects upon transplanted trees, and with this experience you are confident there is no more danger of winter killing than if set out the previous spring?

ED. Not any; except, as I before stated, when planted in cold, wet, and unfavourable soils.

SUB. This point settled, which has been the greatest bugbear in the way of autumn transplanting, leaves little doubt of its being far the *best season*. Your fourth, fifth, and sixth propositions appear to decide the question. There can be no doubt of the better ability of the trees to send out roots early in the spring, which will enable them to resist June and July droughts, so trying to all transplanted trees.

ED. Have you ever carefully noted down the changes in the growth of newly planted trees? If not, do so another year. You will find that a tree set out in April will break freely, and start into growth vigorously; but by the time our early rains are over and dry weather sets in, then they often come to a dead stand—scarcely another shoot will they make all summer. Just at the time the greatest supply of sap in required, the tree is unable to give it, as it has not yet established itself sufficiently to furnish that supply; consequently the growth stops, and in many instances death ensues.

SUB. Without noting particularly the condition of trees which I have transplanted in the early part of the season, I have lost too many not to be aware that, in June or July, they generally have completed about all the growth they make the first year.

ED. Now give the same attention to those you set out in the fall. You will find they will rarely start so early, and generally not so vigorously, as the spring-planted ones. They come along slow, but sure—no faster than the roots are made which have got the start of the shoots—and in July and August will make almost as much wood as an old-established tree. If, again, you look into the subject thoroughly, you will find the roots are at work long before the surface of the soil is loosened from its frosty hold. Just as we see an old tree, after one or two hot days in April or May, break at once into leaf. If, however, the frost was not out, the tree would remain stationary; this shows that there is root action long before we see it indicated by the breaking of the buds.

SUB. Very reasonable and true. It must weaken the energies of any tree making much wood to attempt to supply the food which a week of June or July weather would extract.

ED. Precisely so, and a little observation will convince any one of this.

SUB. Something has been said in favour of the autumn, that trees make roots after they are set out at this season. Is this so?

ED. This question is not one of *doubt*, but of *fact*. Captain Lovett, in an article in our Magazine some years ago, has shown that trees transplanted *early in the autumn* (October) always put out new roots before winter, and tender kinds when protected by a covering of manure or leaves to keep out the frost; the root-making process goes on until mid-winter, and we are inclined to believe *all* winter.

SUB. My observation, though somewhat limited, has, however, convinced me that the reasons you give in favour of *autumn* transplanting are founded on sound principles, and when understood cannot fail to be generally followed.—(*Hovey's Magazine of Horticulture.*)

DESIGN FOR AN ESTATE COMPRISING SIX ACRES.

BY T. RUTGER, ESQ.

THE design comprises about six acres; the approach is by a lodge entrance, which leads on to the stables; at the south-west of the house there is a conservatory attached, a circular flower garden, a compartment for an aquarium, and a summer house. At the north-east of the house is a court with offices, leading into the laundry yard, etc., all of which will be understood by the reference. The clumps at the angles of the walks are intended for choice dwarf shrubs, and a handsome American border can be arranged along the north side, from the streamlet to the walk which leads into the forcing department. The whole of the ornamental part of this design is intended to receive trees and shrubs of the most select kinds, grouping them on the lawns, or planting them singly, in accordance with good taste and sound judgment, placing the larger kinds at the greatest distance from the house, etc.

Reference.—1. Stable yard, with coach-houses and stables. 2. Piggery. 3. Laundry yard, with laundry and brewhouse. 4. Poultry court, with erections for fatting, etc. 5. Dung yard and compost ground. 6. Frame ground with sheds. 7. Reserve ground, with sheds for the use of the frame and forcing departments. 8. Forcing department, with two forcing houses, and a pit and sheds, one of which may be fitted up as a room for the under gardener. 9. Kitchen garden, with an entrance from the main road, and two tanks, to be fed by a drain from the rivulet, and which may also be carried on to the frame and forcing departments. 10. Orchard and fruit garden. 11. Gardener's house and yard. 12. Lodge. 13. Alcove.

REVIEWS.

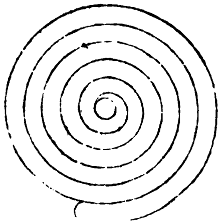
The Book of the Garden. By CHARLES M'INTOSH, F.R.P.S., etc. In two volumes. Vol. I., Structural, price £2 10*s.*; Vol. II., Cultural, price £1 17*s.* 6*d.* Edinburgh and London: W. Blackwood & Sons.

IN our Magazine for May we introduced this very valuable work to the notice of our readers, and gave an extract from it, as a fair specimen of its contents, on the subject of ornamental structures adapted for the pleasure ground, flower garden, etc.; and having subsequently received letters of commendation from purchasers for doing so, and of their high approval of the publication, we have great pleasure in again recommending it, and give a further extract, as illustrative that the TALENTED AUTHOR not only states what should be done, but clearly describes how it is to be accomplished, and that in such a plain and comprehensive manner, that almost any individual may at once become a practical gardener in any of its departments. The instructions are not only fully detailed, but, wherever required, are illustrated by descriptive figures. The following extract will supply our readers with the assistance rendered in reference to the correct formation of flower gardens, beds, etc. In every other department of gardening the author is equally explicit. Employers procuring the *Book of the Garden*, and presenting it to their gardeners, or otherwise allowing them the opportunity of having it on all necessary occasions, would soon find their kindness amply repaid.

"PRACTICAL DIAGRAMS EXPLANATORY OF THE RULES FOR LAYING OUT GARDENS, MORE PARTICULARLY FOR FORMING CURVED LINES.

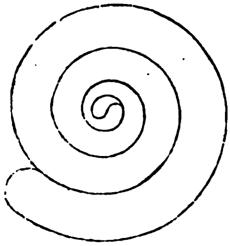
"To form a Volute where the border is of equal breadth.—The usual mode of forming a volute or spiral line is one of the simplest problems in geometry, and therefore requires no explanation here. The following method is, however, both original and better adapted for throwing up such a figure in groundwork. It is the invention of Mr. Alexander Forsyth, and was by him first described in 'The Gardeners' Magazine,' from which source our four following figures and descriptions are taken. 'Make a circle around the centre of your intended volute, as much in circumference as you intend the breadth of your circuitous border to be; stick this circumferential line full of pegs, and tie one end of a garden line to one of them. Taking the other in your hand, go out to the point where you intend the volute to begin; and as you circumambulate, holding the line strained tight, you will delineate on the ground the annexed fig. 1012.

Fig. 1012.



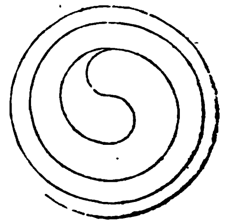
A volute where the border is intended to be gradually narrowed towards the centre, as in fig. 1013, may be thus formed:—Make a circle as before, and instead of driving the pegs upright, let them form a cone; or, instead of pegs, use a large flowerpot whelmed, and, if necessary, a smaller one whelmed over it. Measure the radius of your volute, and wind that complement of line round the cone in such a manner as to correspond with the varying breadth of your intended border, and commence making the figure at the interior by unwinding the line.'

Fig. 1013.



A volute, the border of which widens as it approaches the centre, is produced upon the same principle as the last; only, as the figure is as it were reversed, unwind the line from the other end, and fig. 1014 will be produced.

Fig. 1014.



The following ingenious method of forming circles or other curvilinear lines, is the invention of Mr. Forsyth, and must be of great practical use to those who have the laying-out of grounds, particularly intricate figures in geometrical gardens. Suppose *a b c*, fig. 1015, to be three points in the curve, taken at equal distances (say fifty links): placing the cross-staff at *b*, with one of the sights pointing to *a*, make *b r* perpendicular to *a b*, and measure its length. Then, removing the cross-staff to *c*, make *c r* perpendicular to *b c*, and equal to *b r*; and make the line *b r d* equal to *a r c*. Then *d* is a point in the curve; and in the same manner other points may be found successively.

Fig. 1015.

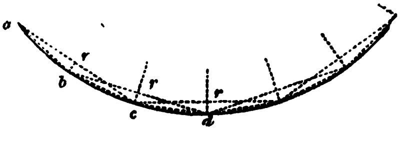


Fig. 1016.

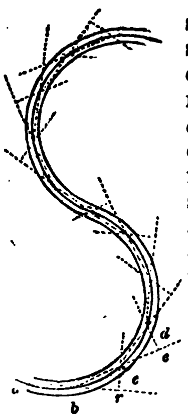
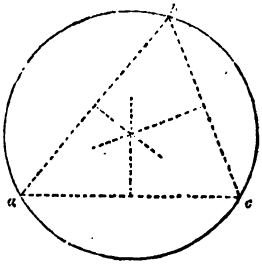


Fig. 1016 differs from the above only in this, that the angles are taken outside. Set up three pegs, say fifty links apart, as before, and fix the cross-staff in *r*, with one sight on the line *r b a*, and the other pointing to *c*. Then measure *r b* and *r c*, and remove to the line *e c b*; draw *e c* equal to *r b*, and *e d* equal to *r c*, and so on. The same end may be obtained by a theodolite, or by any other instrument for taking angles; or even with three needles stuck in a board, forming the requisite oblique angle. Setting the instrument in *b*, fifty links from *a*, with one leg of the angle on the line *b a*, and by the other peg directing an assistant to place the peg *c* at the distance of fifty links; then remove to *c*, and so on.

To find the centre of a circle, whose circumference will pass through three given points (not in a straight line), connect the three points *a b c* together; from the middle of each erect lines perpendicular to them, and where these perpendiculars cut each other is the centre required.

Fig. 1017.



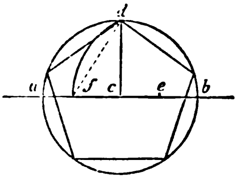
To find the centre of a circle.—Connect three points in the circumference, and from the middle of the two lines erect perpendiculars; where these intersect each other is the centre required.

To construct a hexagon.—Divide the circle into three equal parts; from the middle of each line erect a perpendicular; and where these cut the circumference of the circle are the points where the sides of the hexagon meet.

To construct an octagon.—Divide the circle into four equal parts, by describing a square within it; erect perpendiculars from the middle of each side of the square; and where they intersect the circle are the points where the sides of the octagon meet.

To construct a pentagon.—Draw a line through the centre of the circle, from the centre of which erect a perpendicular, *c d;* divide the straight line from *c* to *b* into two equal parts; take *e d* as a radius, and describe a circle, making *e* the centre, and when that circle cuts the straight line at *f* the distance from *f* to *d* is the length of the side of the pentagon.

Fig. 1018.

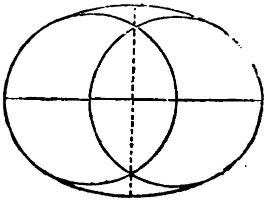


To describe a circle the centre of which is occupied with a square, say the base of the pedestal of a statue, fountain, etc.—Tie a cord round the square, not over tight; to that attach a line, in length equal to the radius, minus half the size of the square base; with that line describe the circle.—This is a plain working plan, and near enough for all practical purposes in laying out grounds. The same rule may be applied when the base is circular, or of any equal-sided figure, a pentagon, hexagon, etc.

To describe a circle when the base of the fountain, statue, etc., is oblong.—Lay the oblong correctly down on paper; find its centre, by drawing two lines diagonally through it; from that describe a circle of any size; draw two lines across the circle parallel to the longest sides of the oblong figure; from these erect perpendiculars at equal distances, and note their respective lengths; on the ground draw two lines parallel to the longest sides of the oblong; erect perpendiculars as before, and measure their lengths from the drawing, putting in a peg at the end of each, which will describe the circle required. A line applied as in the last example, will describe an elliptical figure.

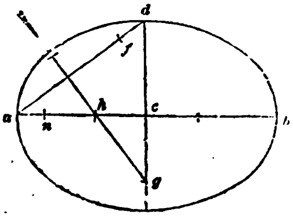
To describe an Oval, whose length is given.—Divide the length into three equal parts; let the two inner points so found be the centres of two circles, which shall form the ends of the oval: the intersecting points of these circles will be centres to the two segments required to complete the figure 1019.

Fig. 1019.



To describe an Oval, when the length and breadth are both given.—Lay down the length and breadth perpendicular to each other; combine *a* and *d;* measure the distance from *c d*, on the line *a c* from *c*, which will give *c n;* measure the distance from *n a*, on the line *d a*, which will give *f;* divide *f a* into two equal parts, at the middle of which erect a perpendicular, and where that perpendicular cuts the line *a b* will be the centre *h*, for the end of the oval; and where it cuts the line *d i* at *g* is the centre for the side (fig. 1020).

Fig. 1020.



The Gardener's Oval, when both the length and breadth are given, is thus formed: Set off the length *a b*, and breadth *c d*, perpendicular to each other; take half the long diameter, and measure from *c* to the line *a b*, with that length; when that line cuts the line *a b*, put in a peg; do the same on the other side, and the point *e* will be found; stick in there also a peg; then, with a cord passing round the pegs *i e* and *c*, with the addition of the space from *a* to *e*, describe the figure with the peg *c*. (Fig. 1021.)

Fig. 1021.

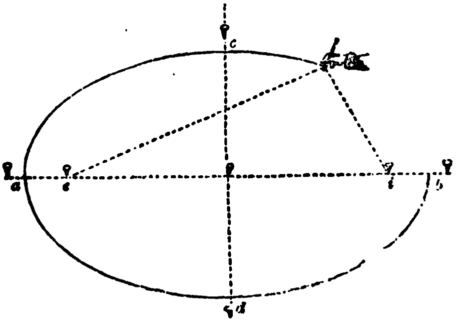
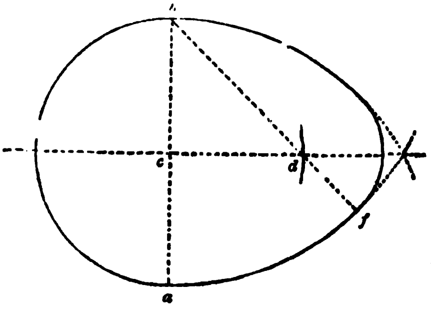


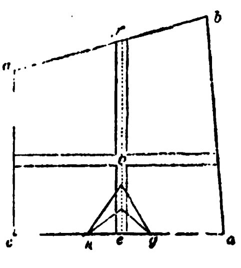
Fig. 1022.



To form an egg-shaped figure (fig. 1022).—The line *a b* being given, divide it into two equal parts; from the point *c*, where these lines intersect each other, construct a circle with the radius *c a* or *c b*; draw the line *c d* perpendicular to *a b*; taking *a* and *b* as centres, describe two arcs; draw a line from *b* through *d*, till it cuts the arc at *f*; then, with *d f* as a radius, complete the figure.

To set off a walk perpendicular to the line *c d*.—From the centre *e*, on the line *c d*, set off *e g* and *e h*, at equal distances. From the points *h g* draw two arcs of different radii; if, where these arcs bisect each other, a line be drawn, it will be perpendicular to *c d*. By the same rule the centre of a walk will be found perpendicular to the line *e f*, taking *o* as the centre, fig. 1023.

Fig. 1023.



To set off a walk perpendicular to the corner of a wall.—Carry out the lines *a* and *b* straight with the face of the wall, and of equal lengths; from the two ends of these lines, with equal radii describe two

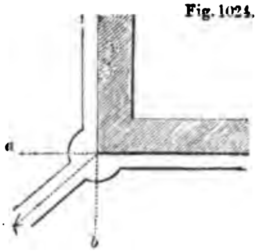
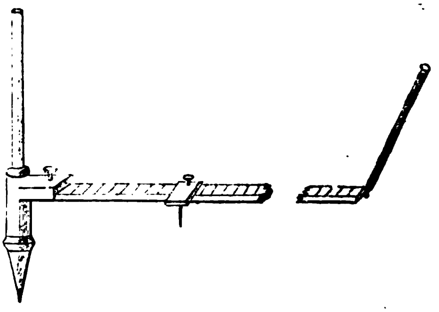


Fig. 1024.

arcs; from where they bisect each other, draw a line to the corner of the wall, which line will be the centre of the walk, fig. 1024.

The annexed diagram, fig. 1025, illustrates an instrument very useful in laying out mathematical figures. It consists of an upright pole 2 feet in length, shod with iron, upon which revolves a metallic tube, with a projecting shoulder, to which is attached, by a screw, a wooden rod 8, 10, or more feet in length, marked in feet and inches. Upon this rod there is a moveable iron slide with an iron sharp-pointed stud. The 2-feet pole being placed in the centre, or point from which the figure is to be described, the slide is moved along the rod to the proper distance, and fixed there by means of a screw. An iron handle, turned up at the end of the rod, about eighteen inches in length, is taken hold of, and as it is moved round, the iron stud in the horizontal rod describes the figure intended.

Fig. 1025.



Another useful instrument is a pair of wooden compasses shod with iron, the legs of which are 5 feet in length. To one leg a quadrant bar of iron is attached, and made to pass through the other leg. This quadrant-shaped iron rod is perforated at every 3 inches, and furnished with a screw-pin to keep the legs of the instrument distended to the extent required. The quadrant rod is placed exactly in the middle of the leg of the instrument, so that when the leg is moved, for example, 3 inches on the quadrant, it gives 6 inches at the points of the compasses; if moved 1 foot on the quadrant, it gives 2 feet, and so on, being always double the former extent.

The following figs. 1026 to 1040, which sometimes occur in flower-gardens, are given, with their centres marked to facilitate their being laid down on the ground. They are from a German work entitled 'Handbibliotheck für Gärtner,' by Ligilir of Berlin.

Rules for calculating the length of shadows.—In selecting situations for gardens, and also for planting trees for shelter, the length to which their shadows will reach during winter deserves consideration, as also does that of the shade caused by walls and other buildings; for no screen should be planted so close as to shade any part of the ground, nor any glass roof be erected on which the sun may not shine every day in the year.

Figs. 1026 to 1036.

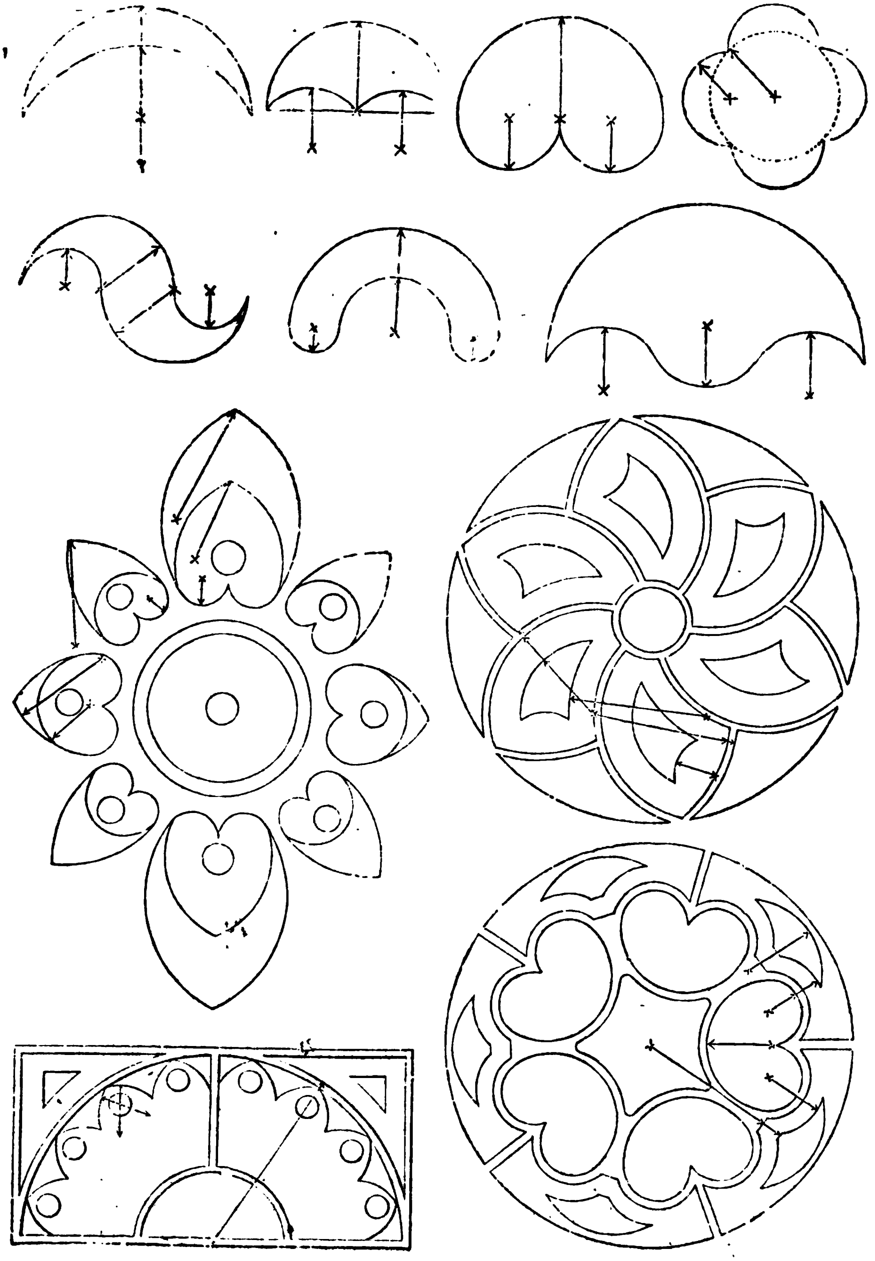


Fig. 1037.

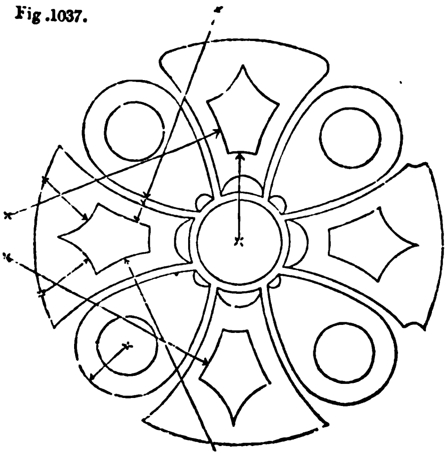


Fig. 1038.

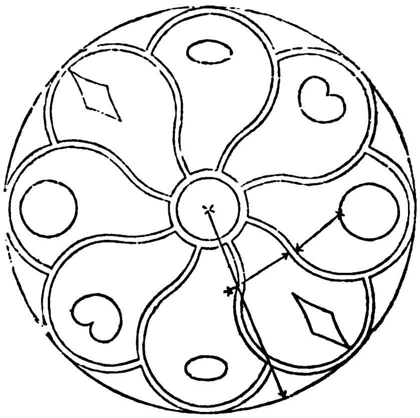


Fig. 1039.

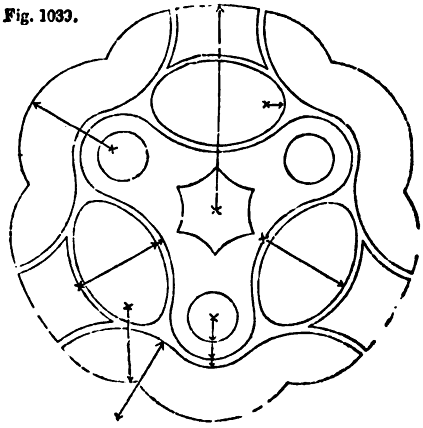
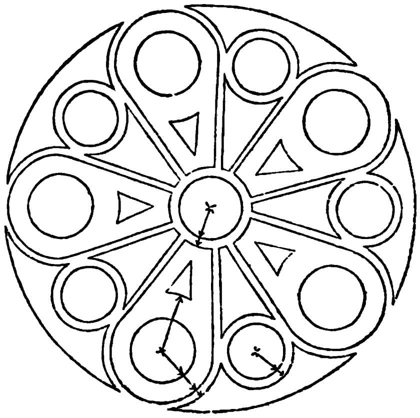


Fig. 1040.



Several rules are given for determining this. The relation between the height of a tree and the length of its shadow depends on the latitude of the place and the sun's declination, which latter will be found by consulting an almanack, and the former by the sun-dial—at least, most sun-dials have the latitude engraved on them ; if not, the map of the county will give it. The height of the tree, wall, or building, and the length of its shadow on the ground, form the perpendicular and base of a right-angled triangle, the hypothenuse of which angle is represented by that of the sun's rays from the top of the tree to the ground. This hypothenuse, or direction of the sun's rays at noon, always forms, with the ground line, an angle equal to the amount of the latitude and the sun's declination added together, from the 20th of March till the 22nd of September; but, from the 22nd of September till the 20th of March, the sun's declination is to be subtracted from the amount of the latitude. This angle being found, and the height of the wall, house, or tree taken, all the rest will be found by the rules of trigonometry.

The following simple rule may be of use to such as do not understand geometry or trigonometry, and will give the shadow near enough for practical purposes:—

Multiply the height of the wall, tree, or building—

In latitude	51½°	by	3·719.
"	52°	"	3·852.
"	53°	"	4·149.
"	54°	"	4·402.
"	55°	"	4·895.
"	56°	"	5·369.
"	57°	"	5·944.
"	58°	"	6·651.

The product will give the length of the shadow at noon on the shortest day.

Example.—What will be the length of the shadow of a tree 10 feet high, in latitude 52° on the shortest day?

3·852 the multiplier for latitude 52°.
10 the height of the tree.

38·520
12

6·240
12

2·880 *Ans.* 38 feet, 6 inches, 2 parts."

The Garden, the Grove, and the Field. By MARY MILNER. Bath: Goodwin and Co. London: Whittaker and Co.

WITH a contemplative mind, feelings of admiration, and gratitude, the excellent and talented Authoress has for twelve successive months traversed *the Garden, the Grove, and the Field,* and, after a careful examination, has culled some of the loveliest gems that adorned them. The reflections resulting therefrom are given us in sentiment and beauty of style which render the perusal increasingly delightful; and the reader thereof, on visiting similar localities, would be sure to find the book both a cheerful and instructive companion; so much so, that the flowers would appear to be the more beautiful and fragrant, whilst the music of the feathered tribes would be the sweeter. The following extract is but *a part* of the reflections and record of what came under notice during the month of July, and is only a fair specimen of each other month's observations.

"The indigenous field-plants in flower in July are very numerous; though perhaps the blossoms of the hedgerows are, for the most part, less brilliant in their character than those of the preceding month. The garden-flowers, on the contrary, now exhibit a higher degree of splendour.

"'The weeds of one country,' as Dr. Edward Daniel Clarke observes in his narrative of his travels in Sweden, 'are the flowers of another;' and the rose, which grows wild in the sunny plains of Syria, takes precedence of all other flowers, in its cultivated state, in the estimation of the most flower-loving nation of Europe. The natives of Paris particularly prize the white damask rose; but roses in general are highly valued by the French. It is still an annual custom in some of the rural villages of France to present a rose, on a certain day, to the cottage maiden whose character and conduct have gained for her the especial approbation of her neighbours and companions; she who receives this graceful tribute of rustic esteem and affection being distinguished, during the succeeding year, by the appellation of *La Rosière*.

"The stately holly-hock (*Alcea rosea*), also a flower of Eastern origin, and now common in English gardens, was formerly known in this country as the 'foreign rose.' Like several plants of the mallow family, the holly-hock has been extensively cultivated for the sake of its fibres, which are sometimes converted into thread, like those of hemp or flax. The stalks of this plant yield a blue dye, scarcely inferior in its colour to that procured from indigo. The common holly-hock, which is a biennial plant, growing to the height of eight or ten feet, exhibits almost every variety of tint, from pure white to that rich dark puce, which gardeners and connoisseurs often profess to prefer to the beautiful hue of the clusters of pink flowers which clothe the tall holly-hocks in many a cottage-garden, and make them look like 'pyramids of roses.'

"Fuchsias are now in the perfection of their beauty. Many varieties of these lovely flowers, the whole tribe of which was unknown in England less than a century ago, now wave their rich crimson bells in our humblest village gardens. The most beautiful, perhaps, of the Fuchsia family is the scarlet variety (*Fuchsia coccinea*). It was brought into this country from the western world in the year 1788; and being presented to Queen Charlotte, was introduced into the Royal Gardens at Kew. The other varieties have been for the most part brought into England within the last thirty years.

"'Flowers,' observes an original writer, 'have a language; not merely that which, speaking in the fragrant incense of unceasing praise, ascends to Him who bids us "consider the lilies of the field;" nor that which, touching some sweet chord of tender association, awakens the sympathy of many a heart. Their language is the language of FACTS. To select one example. What does the richly coloured fuchsia suggest to the well-informed and meditative mind? It suggests a wide and richly cultivated plain; a shining lake; in the centre of which there once arose a magnificent city, crowded with palaces, whose chambers were tapestried with a rich mosaic of bright-hued feathers, and ceiled with plates of precious metal; whose gardens surpassed the choicest horticultural exhibitions of modern Europe; whose libraries were filled with rolls of cotton painted with no mean skill; and with bunches of curiously knotted thread, which served the Mexican students,—and they were not a few,—as books, in which they might peruse the chronicles of their country, the songs of their poets, and the researches of their *savans*.

"'And what is Mexico now? Far in the depths of untrodden forests, or in the midst of unhealthy plains, stand the ruins of vast and richly sculptured temples, and of palaces worthy of those who erected such fanes; ruins half hidden by the luxuriance of tropical vegetation, inhabited by bats and reptiles, and shunned with superstitious awe by the timid descendants of their founders; and 'mid those ruins the FUCHSIA springs, and its drooping flowers of sanguine hue assimilate well with the locality.'

"The Passion-flower (*Passiflora cærulea*) is now in full bloom, and forms, with its spreading, branching, and dark leaves, a beautiful creeper for the covering of a wall or trellis having a southern aspect. In the wild woods of America it may be seen climbing up to the topmost sprays of the tallest forest-trees, and adorning their branches with its flowery garlands. Its fruit, also, is much valued in hot countries. The name given to this flower has the same signification in most European countries. It is related that the Spaniards, when they first saw it in the New World, regarded it as a type of the future conversion of the inhabitants to Christianity; imagining that its several parts had reference to the crucifixion. Its five anthers seemed to them to represent the five wounds of our Saviour; its triple style, the three nails by which He was fastened to the cross; and its ray-like petals, the glory which in many old paintings surrounds His head. The rose-coloured Passion-flower, which grows wild in Virginia, is believed to be the species which was first cultivated in England.

"It were vain to attempt to enumerate the flowering plants and shrubs which are at this season in bloom and beauty in our English gardens. A few, however, may be particularized. Sicily contributes the fragrant sweet pea, known as the painted lady (*Lathyrus odoratus*), whose butterfly-like blossoms need no cultivation in that sunny island; and Ceylon sends us the richer and darker varieties, which flourish in wild luxuriance under the beams of her more ardent sun. By their butterfly-shaped flowers, persons who know nothing of the science of botany may always recognise the pea-tribe of plants; and no tribe perhaps is more numerous. The sweet odour of blossoms belonging to this family, mingled with that of the sweet-briar, the honeysuckle, and other fragrant flowers and herbs, is prevalent in English meadows, as in English gardens.

"Dr. Paley mentions the pea flower as affording a remarkable example of the 'mechanical contrivance' often observable in the works of the great Author of Nature. Seeing a field of peas in blossom, he observed that all the flowers *turned their backs to the wind* whenever it blew strong enough to endanger the delicate parts on which the ripening and preservation of the seed depend. 'Their doing this,' as he remarks, 'is the result of the peculiar structure of the flower; and is strictly mechanical; as much so, as the turning of a weather-board, or tin-cap, upon the top of a chimney.' Again; 'Why,' asks the author of the 'Natural Theology,' 'does the pea put forth tendrils; the bean, not? Because the stalk of the pea cannot support itself, while the stalk of the bean can.' It is further observed, that in the pea-tribe, these clasps do not make their appearance *till they are wanted;* till the plant has grown to a height which renders support necessary.

"Certain flowers, as it is well known, open and close their petals at particular hours. This circumstance, or rather the general fact of the periodical sleep of plants, was first discovered by Linnæus. The occasion of this discovery is said to have been as follows:—

"The great botanist having been presented by a friend with a rare and very beautiful flowering plant, and desiring one night to visit it in his greenhouse, proceeded thither, accompanied by his gardener, who carried a lantern. The light, however, on being directed towards the plant, showed no blossom. The blossom had vanished. On the following morning, it was again apparent. At night, it had a second time disappeared; and on the next morning it once more spread its petals before the astonished eyes of Linnæus. The gardener believed his master to be deceived. The blossoms, in his opinion, withered each night, and fresh ones opened on the succeeding morning; and this opinion would probably have been received as well founded, and established accordingly, had not the celebrated Swede been a more diligent observer than his gardener. Had it been established, the botanist might never have made that curious series of observations, which ultimately led to the arrangement of his 'Dial of Flowers;' would, indeed, in all probability, never have conceived his

"'Beautiful thought to mark the hours,
As they floated in light away,
By the opening and the folding flowers,
That laugh to the summer's day.'

Linnæus, however, was not satisfied by the hasty assumption of his gardener. He visited the greenhouse on the third evening; and finding that the blossom was invisible as before, examined the plant carefully, and detected the flower folded up and *asleep* under its leaves. Deeming it unlikely that such a phenomenon should occur only in a single instance, he persevered in his observations; and the curious fact of the regular sleep and awakening of plants was established.

"Connected with the subject of the periodical opening and closing of the petals of flowering plants, a deservedly popular writer* has some beautiful observations.

"'How still, how solemn, and yet how peaceful, is the witching hour of deep midnight, when the glorious stars are keeping their watch on high, and when the earth is covered as with a mantle of silence and obscurity! I have often looked within the garden range for flowers that grew there in all their fragrance and beauty before the sun had set, but have not found them; and so it is in the green meadow, or beside the road. You may not see a daisy in the grass, nor yet a single hawk-weed on the bank; the brilliant goat's-beard has folded up its petals; and the dandelion, that loves to cover the interstices of broken pavements with its ample disks, is no longer visible. Night with her broad shadows has not veiled them; for there *are* flowers which yet look the pale moon in her face; and some few there are that open only when the day has closed in. They open, that such insects as love the night, warmly coated moths, and ephemera, may drink and be refreshed, when all other vegetable fountains have ceased to flow; or when the guardian petals, by which they are surrounded, have folded up to keep them safe from all intruders.

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* Mary Roberts.

" 'I have seen the evening primrose, or the evening star, as the plant is sometimes called, gradually expand her leaves; looking fairer, and becoming larger, and perfuming the vagrant breezes as they passed, while other flowers were closing; till at length when the moon had risen, or, perhaps, only stars looked down from their high stations in the heavens, this fragrant flower had thrown open all her stores, and busy creatures might be seen repairing thither as to a nightly banquet. * * *

" 'In one of the loveliest portions of the Vale of Clwyd, in a spot much to be remembered,—for the moon was full, and the mists of night veiled, as with a light transparent vapour, the features of the landscape—I have seen the evening primrose, with its fragrant and large yellow flowers, around which night moths and ephemera were gathering. Dusky-looking, yet beautiful but evanescent creatures, often the birth of the noon-day, attaining their full maturity at that still hour when the evening primrose opens her yellow-tinted petals, as if to welcome back the twilight; a star of earth, shining alone for them, and guiding their insect steps or wings, when other flowers have folded up their petals, and are gone to rest. * * * She loves to keep her vigils by dim twilight, or beneath the beams of the cold moon, doing, like Charity, her good deeds in secret. When all eyes, save those of Him who made her, are closed in sleep, she gives both food and sweet nectareous juice to many weary ones, who would perish but for her timely aid. He who watches by the evening primrose, when the night is dark and sultry, and wayfaring creatures could not find their way to her hospitable petals, may see a phosphoric light gleaming from the flower. When not a tree or rock can be discerned, she emits a pale light from all her hundred flowers, and looks as if illuminated for a holiday. You may then see, more clearly than ever, in the bright moonshine, how the stem, and leaves, and petals are covered with grateful creatures. Some re-turning from the lighted petals, where they have been fed or refreshed at the vegetable fountains, to take their rest among the leaves; others hurrying up the stems; and others, again, assembled in the corollas. All and each are either thickly coated or else enwrapped in down and feathers, the better to resist the heavy dews of night.'

"The mechanism by the instrumentality of which flowers close or open their petals is among the wonders of the vegetable creation. The effect is produced by a multitude of spiral fibres, by means of which the stem of a plant is bent, or recovers its erect position, as its welfare may require; and its beauteous corolla is unfolded to the beams of the sun, or closed against the dews of night, or the incursions of noxious insects. By means of this marvellous mechanism many an apparently insignificant wild flower becomes a species of *barometer;* and is actually consulted as such by the peasantry in certain districts."

The Beekeeper's Manual; or, Practical Hints on the Management and Complete Preservation of the Honey Bee, with a Description of the most approved Hives and Modes of constructing them, etc. By Henry Taylor. *Fifth Edition.* Illustrated by a *Hundred well-executed Engravings.* London: Groombridge and Sons, Paternoster Row.

The exterior of the book is handsome, and the interior exceedingly valuable. It appears to contain every information that can be required on the subject treated upon. We have read other works on Bees, but this stands pre-eminently superior to all others. The present edition contains details of all useful discoveries and improvements that have transpired since the Fourth Edition was issued in 1850. Every Beekeeper ought to possess the book, as it is the *summum bonum* on their treatment, etc.

NOTES ON NEW AND SELECT PLANTS.

110. Akebia quinata. Nat. Ord. *Lardizabalaceæ.*—Said to be a native of Japan, but has only been found by Mr. Fortune in China. It is a slender evergreen shrub. The flowers are produced in axillary racemes, and are slightly fragrant; the male flowers are smaller, terminal on the raceme, pink and white; female flowers purple. (*Fig. Bot. Mag.*, 4684.)

111. Nicotiana fragrans. Nat. Ord. *Solanaceæ.*—A beautiful species of Tobacco, attaining a large size under cultivation. Messrs. Macgillivray and Milne found it growing on rocks and waste places, on the coast of the Isle of Pines. Its blossoms are white, deliciously fragrant, very large, and produced in abundance, it moreover continues to bloom all through the summer. Under cultivation the plant attains to the height of four feet; the leaves are thick and fleshy. The terminal panicle of flowers contains about eighteen or twenty blooms in each; corolla white, two inches across; tube

slender, three to four inches long. Very fragrant. It is a plant of easy culture, and deserves to be in every cool greenhouse. (*Fig. Bot. Mag.*, 4865.)

112. Drymonia villosa. Nat. Ord. *Gesneriaceæ.*—It appears to have been introduced into Europe by one of M. Van Houtte's collectors, from Surinam. It is a sub-herbaceous plant, attaining a foot and a half in height. The stems and foliage are densely villous. The flowers are axillary; corolla white, with a purple marking in the throat, an inch and a half across. (*Fig. Bot. Mag.*, 4866.)

113. Stylophorum diphyllum. Nat. Ord. *Papaveraceæ.* Syn. *Meconopsis diphylla.*—A pretty little plant of the Poppy tribe; a native of the woods of the Western States of America. It does not grow so large when under cultivation as in its native state. The plants grow from six inches to a foot high, and resemble the *Meconopsis Cambrica.* The foliage is pale green, and the flowers light yellow. (*Fig. Bot. Mag.*, 4867.)

114. Thermopsis barbata. Nat. Ord. *Leguminosæ.* — Major Madden discovered this species growing on the Himalayas, at an elevation of 10,000 to 13,000 feet. Its pea-like flowers are of a dull violet purple, shaded with green, and are produced in short, axillary racemes, forming together a compound raceme, or short spike. It has been found to flourish well in the open air, Mr. Moore having had it in bloom in the Glasnevin Botanic Garden, in June of the present year. (*Fig. Bot. Mag.*, 4868.)

115. Lilium superbum. Nat. Ord. *Liliaceæ.*—A hardy species, introduced into England many years ago from America. The flowers are in form like those of the Martagon Lily; the floral stem rises from four to five feet high, terminating in a large *pyramidal-shaped head* of beautiful flowers, which are of a rich yellow at the centre, numerously spotted with dark velvet, and the curved ends of the petals a rich carmine scarlet. It is exceedingly showy, and merits a place in every garden; and bulbs may be procured at a cheap price. (*Fig. Flor. des Serres*, 1014.)

116. Papaver nudicaule, Var. croceum flore-pleno. Nat. Ord. *Papaveraceæ.* — A charming variety of the dwarf hardy perennial kind, in habit somewhat like the common Welsh Poppy. The flower-stalks rise about a foot high. The flowers are generally quite double, but occasionally will have a semi-double or a single one. Each blossom is about two and a half inches across, of a rich orange-yellow colour. It blooms freely, and merits a place in every flower garden, blooming from August to October. It is suitable for a rockwork. (*Fig. Flor. des Serres*, 1017.)

117. Astroloma splendens. Nat. Ord. *Epacrideæ.* Syn. *Styphelia splendens.*—An *Epacris-like*, erect branching shrub; a native of New Holland. The flowers are tube-shaped, about an inch long, of a bright carmine red colour; they are produced in abundance in winter, spring, and the early part of summer. It merits a place in every greenhouse. (*Fig. Flor. des Serres*, 1018.)

MISCELLANEOUS.

Royal Botanic Society's Exhibition, Regent's Park, *June 13th.*—There were about the usual collections of stove and greenhouse plants, we omit those; and only give the following:—*Pelargoniums, Six New Varieties.*—1st, for Governor-General, Carlos, Omer Pacha, Serena, Zeno, and Majestic. 2nd, for Attraction, Phaeton, Purple Perfection, Rosa, Carlos, Pandora. 3rd, for Conqueror, Empress, Rebecca, Laura, Gem of the West, and Lucy. 4th, for Fair Ellen, Carlos, Governor-General, Mary, and Seraskier.

Pelargoniums, Best Twelve (Nurserymen).—1st, for Topsy, Rosamond, Mochanna, Portio, Esther, Leonora, Sanspareil, Achilles, Virgin Queen, Rowena, Majestic, and Astræa. *Best Ten* (Amateurs).—1st, for Phaeton, Lucy, Rosea, Queen of May, Ariel, Optimum, Purple Perfection, Enchantress, Eleanor, and Magnet.

Pelargoniums (Fancy Class).—*Best Specimen for Perfection*, two feet high and three feet across, grown in an eight-inch pot, covered with flowers. 1st Prize for six (Nurserymen) was for Celestial, Goliath, Jenny Lind, Electra, Richard Cobden, and Formosissimum. 2nd, for Advancer, Celestial, Queen Victoria, Miss Sheppard, Madame Rosati, and Reine des Français. *Best Six* (Amateurs).—1st, for Formosissimum, Hero of Surrey, Jenny Lind, Princess Alice Maud, Fanny, and Fairy Queen.

Fuchsias.—Six Best Light Varieties were Queen of Hanover, Duchess of Lancaster, Miss Hawtrey, Pearl of England, England's Glory, and Elizabeth. *Six Best Dark Varieties* were Vanguard, Macbeth, Prince Albert, Glory, Verrio, and Autocrat.

Seedling Pelargoniums (not yet sent out).—Best, which obtained certificates, were Meteora (Foster's), a bright orange, with dark maroon spot, profuse bloomer, and remarkably showy. Pallas (Hoyle's) rose, with crimson spot and white centre. Quadroon (Beck's), a rich dark spotted or painted flower, very attractive, of medium size. The following new seedling *Fancies* were shown, and had certificates:—Turner's Masterpiece, chocolate and violet, edged with white. Beauty of Slough, rose edged with white, and light centre. Eva—not a Fancy (Hoyle's), bright rosy orange, with dark blotch, and white centre, good shape.

BRIEF REMARKS, &c.

Grouping of Flowers.—Amongst the pleasures presented to us by the culture of flowering plants, there are few that exceed what we experience from the sight of a multitude of flowers, varying in their colour, form, and size, and in their arrangement upon the stem that supports them. It is probably owing to the admiration bestowed individually upon each, and to the attachment felt for them in consequence of the great care they have required, that pains have hitherto not been taken to arrange them in such a manner as to produce the best possible effect upon the eye, not only separately, but also collectively. Nothing therefore is more common than a defect of proportion observed in the manner in which flowers of the same colour are made to recur in a garden. At one time, the eye sees nothing but blue or white, at another, it is dazzled by yellow scattered around in profusion. The evil effect of a predominating colour may be further augmented when the flowers are of approximating, but still different, shades of colour. That an assortment of complementary colours is never disagreeable is a truth that has long been known to many of our best gardeners and amateurs, and that the brilliancy of colours is considerably increased by employing one colour complementary to another side by side. The principal rule to be observed in the arrangement of flowers is to place the blue next to the orange, and the violet next to the yellow, whilst red and pink flowers are never seen to greater advantage than when surrounded by verdure and by white flowers; the latter may also be advantageously dispersed amongst groups formed of blue and orange, and of violet and yellow flowers. For although a clump or bed of white flowers may produce but little effect when seen apart, it cannot be denied that the same flowers must be considered as indispensable to the adornment of a garden, when they are seen suitably distributed amongst groups of flowers whose colours have been assorted according to the law of contrast. White flowers suitable for grouping with some of our best bedding plants are, however, not sufficiently plentiful, but by having recourse to some of the finely variegated-leaved plants, we are enabled to produce some very beautiful and well-contrasted groups. One of the best and most useful of variegated-leaved plants is Mangles's *Variegated Geranium;* its half-trailing habit and beautifully marked foliage well adapt it for bedding purposes. I may here just observe there are several strains of this Geranium, some of them being much more variegated than others. If care be taken, when propagating, to select only those shoots the leaves of which are highly variegated, no one will be disappointed with this variety. When intermixed with *Scarlet Defiance* or *Beauty Supreme Verbena*, few beds are more beautiful; or it is equally at home when surrounding a mass of *Purple Unique*, *Tom Thumb*, *Punch*, or any other of the free-flowering scarlet *Geraniums*. *Flower of the Day* and *Mountain of Light* are both fine varieties, and make beautiful beds, either upon grass or gravel. If upon grass, an edging of *Defiance Verbena* will improve the appearance. Another useful little plant is the *Variegated Alyssum*. This will be found to make an admirable edging to a bed of *Double Purple Jacobæa* (the dark variety), or to *Purple King Verbena*. A bed of scarlet and white may be composed of *Lobelia fulgens* and *Shrubland White Petunia* intermixed, and a band of *Brillante de Vaise Verbena*. The spikes of *Lobelia* flowers overtopping the *Petunia* have a pretty effect. Another very pretty and highly fragrant bed may be produced by planting the centre with *Mrs. Bosanquet Rose*, and around it *Géant des Batailles*, surrounding both with *Mignonette*. *Mignonette* also forms a good edging to a bed of well-selected *German Stocks*. *Salvia patens*, when well done, is one of our most beautiful blue-flowering plants, and when combined with *Calceolaria amplexicaule* or *C. angustifolia*, a very gay blue and yellow bed is produced. *Clarkia pulchella* and *C. pulchella alba*, when blended together, make a pretty pink and white bed. Again, a bed of fancy *Geraniums*, composed of the following varieties, *Diadematum* in the centre, with an outer row of *Statuiski*, *Decora*, *Sidonia*, *Nosegay*, and *Lady Flora Hastings*, with a band or edging of blue, yellow, purple, and white *Pansies* planted alternately, will produce an effect pleasing to the most fastidious. Numerous other examples might be given, but the above will suffice to illustrate the principle to be observed. Whether the garden be large or small, or whatever may be the character of the stock with which it is intended to be filled, it is alone necessary to remember that the effect of each colour is enhanced by employing that which is complementary immediately about it. Strict attention to the heights, habits, and modes of flowering of different plants is, of course, imperative, and the effect to be produced will greatly depend on their suitability for their several situations. In all cases, before commencing with planting out in the flower-garden, a careful study of the proposed arrangement should be made, and its assumed effect be well matured; and in every case, whilst strict attention should be given to the subordinate details, each should subserve the one purpose of producing an harmonious whole.—*J. Bayley* (*Midland Florist*).

MOSS A PROTECTIVE MATERIAL FROM FROST.—For several years I have used moss, gathered from the woods, to protect my China, Bourbon, and other Roses from frost; and, from recent experience, am so firmly convinced of its beneficial effects, that I feel the information cannot be too widely spread. My practice has been to place round each plant a quantity of moss, in the shape of a cone, averaging fifteen to eighteen inches in width at its base, nine inches at its summit, and from twelve to fifteen inches in depth. We have had scarcely any snow here; but one morning, observing that my thermometer, placed on the northern side of a tree, about six feet from the ground, in an exposed situation, registered 26° of frost, I felt curious respecting the efficacy of my moss protectives. To my agreeable surprise I found that, under cones of moss not more than nine inches deep, owing to their settlement from the rains of winter, the soil was not frozen in the least degree, and the young shoots and buds of the Roses, at the bases of the plants, fresh and vigorous as in the mildest weather. I have hitherto recommended moss, when used as a protective for Roses, not to be placed in contact with the branches of the plants, fearing the effects of damp during the humid weather of a great portion of our winters; but owing to my men not exactly going according to orders, many of my protective cones have been placed closely round the plants; no injury from damp has resulted, and their appearance is highly promising. From having thus so recently experienced the sure and certain protection from frost that moss gives, my ideas have taken a wider range, and I feel convinced that Pelargoniums, by having their leaves taken off from the bases of their shoots towards the end of October, and a cone of moss placed round each plant, may be preserved in our open borders during our severest winters, without injury. Fuchsias, hardy greenhouse plants, half-hardy evergreens, and many other desirable plants, may also be preserved in our open borders. We may thus be able to have them established, and of many years' growth, in our gardens, instead of transplanting them annually, as at present in May; for by the time their roots are well established, frost comes and obliges us to remove them into winter quarters. By protecting them with moss, the lower parts of Pelargoniums and Fuchsias will alone be preserved; but these, as is well known, are full of buds, and their roots being perfect, the plants, after being headed down, will shoot most vigorously, far beyond plants only recently transplanted. It is not perhaps generally known that many tender evergreens will suffer but little in their branches from severe frost, if their roots are well protected. To such moss may be applied unsparingly, with the certainty of pleasing results.—*Thos. Rivers.*

MANNA.—Of the Manna, so called, of Scripture we know nothing further than what we learn from the Sacred Book. The Manna known in medicine is a sweet concrete exudation, procured from a tree called by Linnæus *Fraxinus Ornus*, or the Flowering Ash (perhaps the *Fraxinus rotundifolia* of Lamarck), and a native of the south of Europe and Asia Minor; but the Manna seems chiefly to be collected in Calabria and Sicily. In the districts of Capace, Cinesi, and Fabarotto, where the best Manna is obtained, the tree does not form woods, as is commonly supposed, but is cultivated in separate plantations. These plantations generally present regular squares, hedged in with *Cactus Opuntia.* The trees are planted in rows, and are from two to eight inches in diameter, with stems from ten to twenty feet high, which from the first shoot are kept smooth and clean. The soil is carefully loosened and freed from weeds. After the eighth year the trees yield Manna, which they continue to do from ten to twelve years, when they are cut down, and young shoots from the roots trained; one root-stalk frequently yields from six to eight new trees and more. For the production of the Manna, young and strong shoots are requisite; but they are not tapped till the tree ceases to push forth any more leaves, and the sap consequently collects in the stem. This period is recognised by the cultivators, from the appearance of the leaves; sometimes it occurs earlier than at others, and the collection of Manna takes place either at the beginning of July or early in August. Close to the soil cross sections are made in the stem, and in the lowermost sections small leaves are inserted, which conduct the sap into a receptacle formed by a Cactus leaf; this is the way the Manna is obtained. The incisions are repeated daily in dry weather, and the longer it continues the more Manna is obtained. The stems are left uninjured on one side, so that the Manna runs down the smooth bark more easily. The next year the uninjured side is cut. After the Manna has been removed from the trees, it has further to be dried upon shelves before being packed in cases.—*Hook. Jour. Bot.*, 124.

ON PHOSPHORESCENCE IN THE MOSSES.—Dr. Milde has recently made some observations on this subject, in the *Botanische Zeitung*, which are interesting in reference to the debated question of luminosity of plants. He states that he had formerly observed an emerald-green light emitted from the germinating fronds of Ferns, which were standing in a dark part of the Orchis-house of the Botanic Garden at Breslau, and this exactly resembled what he had seen on the little germinating plants of *Schistostega osmundacea* (the well-known *Catoptridium smaragdinum* of Bridel), in hollows of the cliffs at the summit of the Altvater, in Bohemia, in 1848. This summer he met with the same phenomenon in another locality, perceiving the light in clefts of the rock at some distance. The rock was kept constantly moist by a shower of fine spray from a neighbouring waterfall. The light was emitted from globular bodies. On close inspection it was found that the luminous places were thickly clothed with another moss, *Mnium punctatum*, almost every leaflet of which bore a largish drop of water, and this produced the pretty light which made exactly the same impression on the eye as that of the germinating *Schistostega*. Meyen was rrect in saying that the luminosity of this latter must be struck out of the phenomena usually cited as illustrations of the evolution of light from plants; for it is the cellules of the germinating plant of *Schistostega* swollen into little globules, and the little drops of water on the leaves of *Mnium* which produce that glimmering, by a peculiar refraction and reflection of the daylight; and there is no true production or evolution of light from the substance of these vegetables. The light of *Schistostega* is improperly termed phosphorescent, for it is of a delicate emerald-green.

ON DESTROYING THRIP.—Mr. J. Barnes, of Bicton, says, "I take a peck and a half of soot, and put it into one hogshead of soft water, stirring it well with an old broom or batten, every day for ten days or a fortnight. I then strain off the water through a fine sieve, or piece of canvas, into another tub, on a peck of charcoal, and drop into it afterwards one or two lumps, or about three pounds of fresh lime; in about two days after I strain it again, and it is then clear enough to syringe any plant or plants with. It will not only extirpate thrip, but many other troublesome insects also; and it is famous liquor to syringe with, whether for destroying insects or not, as it induces general vigour and healthiness amongst plants of all kinds."

ON GUANO FOR POT PLANTS, ETC.—In reply to A. B., in a former number, on Guano, I beg to inform him, that it should be mixed with about five times its bulk of earth, and pot in the same any strong-growing plants, as Pelargoniums, etc. On the open border it should be given about the same strength, applying it in wet weather. When the Guano comes into immediate contact with seeds it is injurious to them, so that it is best to carefully mix up the same with a proper quantity of soil before spreading upon the ground, afterwards dig it in. When applied in a liquid state, do it weakly to commence with, and as its effects are soon visible, it may be regulated as appearances suggest. So very different are the constitutions of plants that no exact standard can be arranged, and experience will dictate the best.—*A Practitioner.*

ON PRESERVING PINKS, CARNATIONS, ETC., FROM RABBITS.—Last year my Pinks and Carnations were almost entirely destroyed by rabbits during a storm, and all means I could devise proved a failure. I was advised this winter to take some strips of rags, as broad as my hand and about a foot long, and dip them into melted sulphur, and then fix them into clefted sticks about half a yard high, allowing the rags to dangle about as flags, these I was to place in and around the beds, at about four feet apart. I adopted the plan, and though the temptation has been great during the last few weeks of storm, not one has ventured to touch the Pink or Carnation beds, nor where I had placed a prepared flag at the side of a single plant in the border.—*A Northern Florist.* [Dusting them over with soot will also answer.—ED.]

DESTRUCTION OF RED SPIDER, THRIP, ETC.—"Delta" mentions the circumstance of a paper having been read before the Horticultural Society of London, respecting laurel leaves being used, when bruised, for destroying these pests. As a practical man, I can speak from experience on this subject. Being in the habit of growing melons and cucumbers rather extensively for some years, of course I have been troubled with these insects as well as my brother gardeners, and this year rather more than usual. The method that I have adopted for many years for killing the red-spider, thrip, and green-fly is as follows:—When the plants appear attacked with the insects, I get a quantity of laurel bruised, and put it into the frame or frames, as it may be, about three o'clock p.m. It should be dispersed all over the frame, but by no means allowed to touch the leaves of the plants, for, if you do, it is sure to affect them very materially; then shut down the lights as closely as you possibly can, and should the sun be very fervent at the time, I always throw a single mat over the frame, in order to keep the leaves of the plant from being burnt. The heat to which I allow the frame to rise is from 90° to 100°; never allow it to rise above that point, or you will be sure to lose plants, crop, and all. The length of time that I allow this heat to remain in the frame is two hours only; this time may perhaps appear short, but such is the fact. About six o'clock the mat is taken off, and a little more air is admitted to the plants. On the next morning the laurel is all taken out, and the plants are well syringed with warm water, and, of course, shaded during the day. I am certain that by the evening of the second day there will not be the slightest appearance of thrip or spider. If "Delta" will try this plan, he may be sure of success.—*Devoniensis* (*Gardeners' Chronicle*).

Several inquiries having been made relative to a means of destroying ants, I have effectually succeeded with the following method:—A small handful of African or Peruvian guano sprinkled over the place they inhabit, sprinkling it over with water soon after; or guano-water applied—one pound to four gallons of water will be strong enough. A few applications will soon effect a complete riddance.

REMARKS ON CHARCOAL USED IN COMPOST FOR POT PLANTS, BY MR. JAMES BARNES.—It has been said that the fertilizing properties of charcoal as a manure have been long known, although it was merely by accidental observation I first discovered its value in horticulture; in my opinion it has not yet met with that attention which its merits deserve. Since my application and use of charcoal have been made known, I have received many interesting communications from practical gardeners and amateurs, expressing their conviction of its valuable properties; in other cases there seems to have been some mystery or uncertainty attending its application, for the result has not been so successsful: such always has been the case in similar matters, and, doubtless, will continue to be. I will here attempt to explain, or rather state, the principal object that must be kept in view by all those who would wish to avail themselves fully of the fertilizing qualities of charcoal, when applied as a manure; one of its most useful qualities, then, consists in its affording thorough drainage, and thereby maintaining a kindly communication between the atmosphere and the earth, without which but a trifling degree of benefit will be derived from its fertilizing properties. Other good qualities consist in its absorbing and condensing powers, and in its giving off slowly and permanently, so long as in communication with the atmosphere, those natural gases which are most fitted for promoting the growth of vegetation. To these qualities I attribute its excellence. I have invariably found that plants to which charcoal has been applied, and which have thus had thorough drainage of the soil secured, have continued in the most luxuriant condition, the roots not only numerous, but also in high vigour, and clinging around it and penetrating the cracks and fissures; whereas in cases of slovenly or imperfect drainage, quite another effect has been produced, and but trifling benefit realized from its application. Thorough drainage should certainly, for all purposes of cultivation, be the first consideration—the standing rule and foundation stone with all cultivators of the soil. Its effect is to admit the natural gases of the atmosphere to act in combination with the salts and bases of the earth, thus securing the most natural and perfect results.

FUCHSIAS FOR BORDERS, HEDGES, ETC.—Several correspondents have requested us to give a list of the best kinds of Fuchsias most capable of enduring the open air in this country. We have many hundreds growing in beds, and along borders by the sides of walks, etc., and find that nearly every one will succeed well, with the exception of fulgens and corymbiflora, though both kinds, even when cut down to the ground in winter, have pushed up again in spring. We find that the hard-wooded kinds do the best, such as Baxteri, elegans, virgata, formosa elegans, and those of a similar habit. There are many splendid hybrids, raised between the soft-wooded and hard-wooded kinds, which we find do admirably well; most of the recent new kinds are of that class. We have lately seen some fine hedges of Fuchsias in profuse bloom; they formed the divisions of several front flower gardens having a south aspect, and each hedge, eight yards long, was of a different kind, three feet high, and had an elegant appearance. They bloom, too, from May to November.

PROPAGATION OF STOVE AND GREENHOUSE PLANTS.—The methods of propagation are by cuttings, layers, suckers, seeds, and divisions of the roots.

Cuttings.—No period can be definitely fixed for putting in the cuttings of the different genera; this must always be left to the judgment of the cultivator. Some plants propagate freely by cuttings of the young and tender wood, as Melastoma Barleria, Astrapæa, Inga, etc.; others, when the wood begins to assume a brownish colour, or is half ripened, as Ixora, Bauhinia, Passiflora, Ruellia, etc.; whilst others will only strike freely, when the wood is *perfectly ripe*, as Grevillea, Blakea, Cheirostemon, Achania, etc., but as a general rule, the proper season lasts from January to August. All hard-wooded kinds make roots best in *clear sand*, but soft-wooded kinds require to be planted in *light loamy* soil. After properly draining the pots, fill them with sand or soil, according to the kinds intended to be propagated. On no account mix soft-wooded and hard-wooded kinds together in the same pot. If a hotbed frame can be appropriated to the purpose of striking the cuttings, so much the better; but if not, place them in a damp, shady part of the stove; in either place they require to be sheltered from the rays of the sun, until they have struck root. Care is requisite in removing the leaves from the lower end of the cuttings, that the bark be in nowise injured. Never take off more leaves than are necessary for the insertion of the cutting, nor mutilate or shorten the remaining ones. After the cuttings are put in, a gentle sprinkling of water may be given through a fine rose, to settle the soil about them; after which they may be placed in the situations where they are to strike, and be closely covered by glasses from the air until they have begun to grow, when they may receive a little air. Water must be administered with caution. When they have struck root, pot them off into small pots filled with light sandy loam and leaf-mould, replace them in the frame until they have begun to grow, then gradually expose them to a more gentle temperature, and finally remove them to the stove or greenhouse.—*A Practical Cultivator.*

ON WIREWORM.—To destroy this pest most effectually:—Towards the end of last year, when my Carnations and other plants had all been removed from my flower-beds, and previous to the latter being turned up for exposure to the winter frosts, I took sulphuric acid, in the proportion of one gallon to twenty of water, and applied the mixture plentifully to the soil. In two days I again repeated the operation, having previously turned up the soil, and seen that it had been well pulverized. After the lapse of ten or fourteen days I gave a plentiful application of powdered lime, and shortly after turned the soil up in ridges as usual. The result has been that it is now a rare thing to see a wireworm where previously I had often killed a hundred in half an hour, and where my plants were eaten up in a wholesale manner. Let any one collect a number of these most destructive pests and put them among soil in a box, and then apply the above mixture. Let him look for them next morning and communicate the result; or, indeed, in half an hour after. This can be used on a large scale as well as on small flower-beds, or soil for pot culture.—*An Ardent Florist.*

ON THE FINE BLUE DWARF GENTIAN.—Noticing in a late number the excellent remarks on cultivating this lovely blooming plant, I beg to say that I pursued the following method with great success. Last season I divided my plants the *first week in July*, but not into very small patches, and replanted two beds into a rich, sandy, loamy soil. I shaded them for several days; they soon struck fresh roots, were finely established before winter, endured that without injury, and bloomed vigorously and profusely this spring. To divide and replant at the season mentioned I am persuaded is the proper time, and not in autumn as is generally done, or in early spring as done by some. My double Daisies I treated the same, and they succeeded admirably.—*Clericus.*

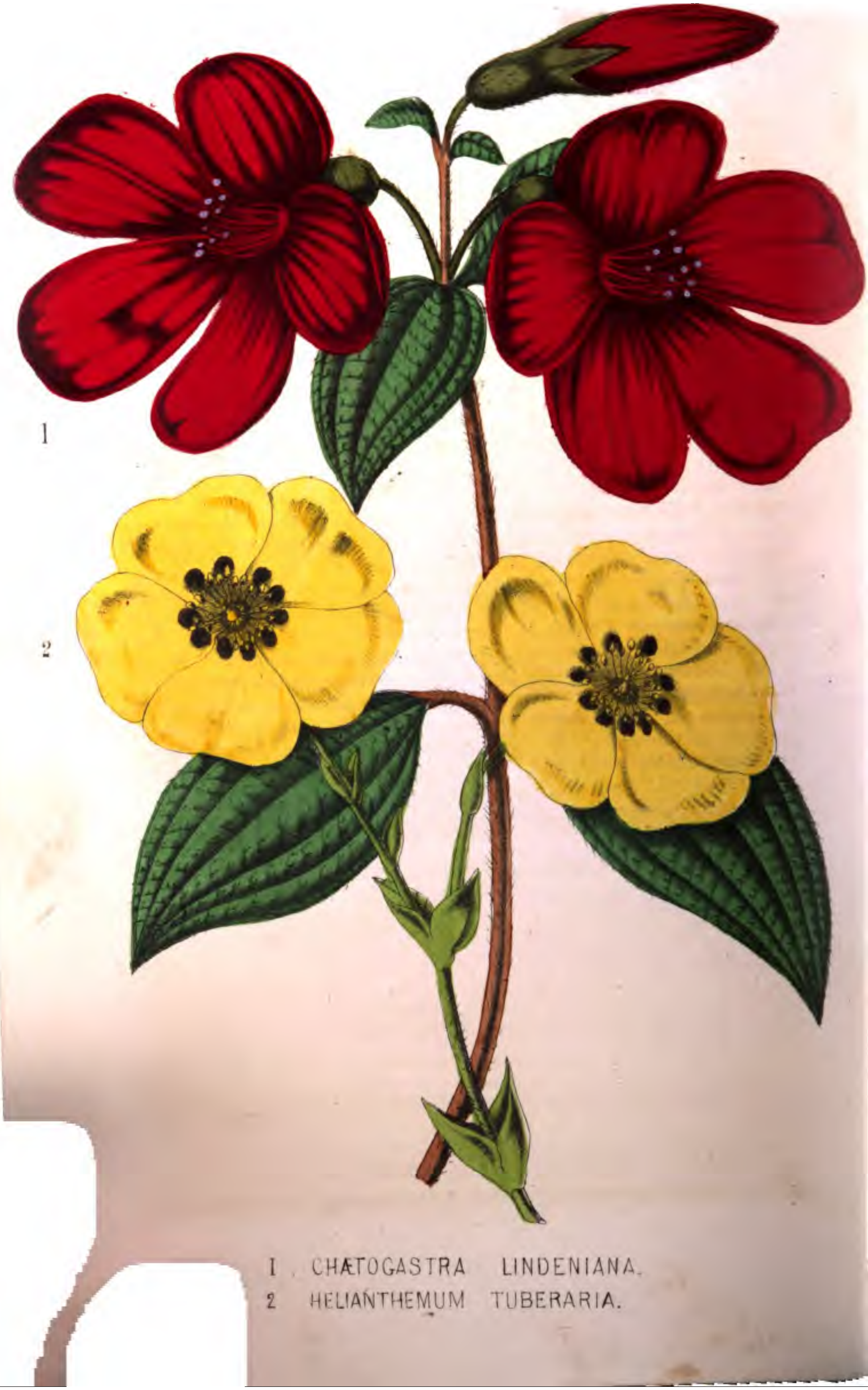
ON THE MAGNOLIA.—I have two Magnolias which have been in my possession fourteen years, and grown against a south-east wall, but which have not bloomed. Four years back I removed them, in order to induce them to flower; but although they have grown well since, there are no signs of my object being realized. If some reader of the CABINET would favour me with particulars to adopt so as to obtain a bloom, I should esteem it a great kindness.—*A Beginner.*

DISTRIBUTION OF ISLANDS IN A LAKE.—The distribution of islands in a lake or pond requires some judgment; they will always appear more natural when sufficiently near the shore, on either side, to maintain in appearance some connection with it. Although islands do sometimes occur near the middle of natural lakes, yet the effect is by no means good, as it not only breaks and distracts the effect of the whole expanse by dividing it into two distinct parts, but it always indicates a shallowness or want of depth where the water should be deepest. There are two situations where it is universally admitted that islands may be happily introduced. These are at the inlet and the exit of the body of water. In many cases, where the stream which supplies the lake is not remarkable for size, and will add nothing to the appearance of the whole view from the usual points of sight, it may be concealed by an island or small group of islands, placed at some little distance in front of it. The head or dam of a lake, too, is often so formal and abrupt, that it is difficult to make it apppear natural and in good keeping with the rest of the margin. The introduction of an island or two, placed near the main shore on either side, and projecting as far as possible before the dam, will greatly diminish this disagreeable formality, particularly if well clothed with a rich tuft of shrubs and overhanging bushes. Except in these two instances, islands should be generally placed *opposite the salient points* of the banks, or near those places where small breaks or promontories run out into the water. In such situations they will increase the irregularity of the outline, and lend it additional spirit and animation. Should they, on the other hand, be seated in or near the marginal curves and indentations, they will only serve to clog up the recesses; and, while their own figures are lost in these little bays, where they are hidden, by lessening the already existing irregularities they will render the whole outline tame and spiritless.—*Downing's Landscape Gardening.*

FLORAL OPERATIONS FOR SEPTEMBER.

FLOWER GARDEN.—Now sow seeds of annuals, as *Clarkia*, *Collinsia*, etc., in small pots, well drained, and keep them in a cool frame, or other suitable place during winter; then turn the plants out, entire (or split the balls), into the open borders, in March and April, and they will soon be in bloom, and ornament the garden at an early period. Seeds of many kinds *now sown* in the *open border* generally survive the winter, and bloom vigorously early the next season. *Carnations:* the layers should be taken off, severing them *at a joint* as near the root as possible. Only a few of the bottom leaves should be trimmed off, to admit the compost to settle closely round the stem, and that no leaves may rot inside the soil and be likely to damage the main stem. The compost in which to pot them must not be rich, or the plants will be likely to grow too vigorous, and become what florists term too gross. Equal portions of year-old turfy loam and leaf-mould, with a small proportion of sand mixed therein, is rich enough, and of a dryish texture, and the plants keep healthy in it if otherwise duly attended to. In potting, place two layers in each pot. Put them in a cool frame for about ten days, keeping the lights closed, and shaded from mid-day sun; this contributes to an immediate striking root afresh; afterwards they may be fully exposed in a sheltered spot, having a thick floor of coal-ashes or boards to place the pots upon, in order to prevent worms entering. *Pinks:* beds of them may still be made, and the earlier the more successful; dig into the bed four inches in thickness of old manure; do it a week or so before planting, and plant as early in the month as you can. *Pansies:* beds of them should be made for next spring bloom. Pot some of all the best kinds in small pots, to be placed in a cool frame during winter. If the sowing of the seeds of biennials, as *Scabious*, *Canterbury Bell*, *Brompton* and *Queen Stocks*, etc., has been neglected, they should be attended to as early as possible. *Verbenas:* runners should be potted in small pots, a third filled with potsherds, and the rest with good loamy soil, placing them in a close cool frame for ten days, shading from mid-day sun; after which gradually expose them to open air. Attention to them should be *immediate*. *Bulbs*, as *Hyacinths*, etc., are now to be had, and the sooner they are potted, the more vigorous will they bloom. *Chinese Primroses* should be encouraged for winter blooming. If mildew appears on any plants, dust them with sulphur immediately. *Camellias* may be grafted; the operation may be performed with the greatest success by pursuing the method the French call "*graffe en placage*," which is merely inserting that portion of wood that includes a bud and leaf, cut longitudinally, into a corresponding cleft in the stock. The grafted subjects should be plunged in bottom heat, and kept covered for at least a month. *Roses* may still be budded. Nail to the wall young shoots of *Banksian Roses*. Cut clean away those not wanted. Prepare beds of *Sweet Violets*. *Roses* for forcing too.

GREENHOUSE, ETC.—Cuttings of nearly all plants may yet be successfully struck; but the earlier they are put in the better. Towards the end of the month take in the tenderer greenhouse plants; but the house should be whitewashed, etc., previously, if required. Repot *Chrysanthemums*, if the pots they are in be full of roots; give manure-water once a week. *Cinerarias:* pot off singly the offsets, also seedlings. Seed of *Calceolaria* may still be sown, but as early as possible. Cuttings of bedding plants should be put in directly. Pot off singly rooted cuttings of *Pelargoniums*, etc. Cuttings of *Tea Roses*, *China*, *Bourbon*, etc., soon strike root at this period.



I. CHÆTOGASTRA LINDENIANA.
2. HELIANTHEMUM TUBERARIA.

The Floricultural Cabinet.

OCTOBER, 1855.

ILLUSTRATION.

I. CHŒTOGASTRA LINDENIANA.

Nat. Ord. MELASTOMACEÆ.

THE vast and brilliant family of Melastomads abound on the mountains of South America, particularly in Columbia; many splendid kinds have been introduced into our gardens, and flowering specimens of others equally fine have been received, but the one we now figure, we are told, stands unrivalled. It was first discovered by M. J. Linden (formerly Consul at New Granada, now Director of the Royal Zoological Gardens at Brussels), upon the summit of Monserrat. Subsequently it was found by M. Schlim, in the province of Pamplona, in New Granada, and from thence has been received by M. Linden, in whose establishment at Brussels, plants of it have bloomed in the stove. It forms a bushy shrub from two to three feet high, grows freely, and blooms profusely, producing a magnificent effect. It merits a place in every stove or warm greenhouse.

II. HELIANTHEMUM TUBERARIA. *Nat. Ord.* CISTACEÆ.

A hardy perennial plant; a native of the south of France, Italy, and Spain; grows freely, and blooms profusely. It is the largest flowered of all the dwarf *Cistuses*. The flowering stems rise to a foot high, terminating in panicles of from six to ten blossoms in each, which very much resemble yellow roses. It begins to flower in July, and continues to bloom in long succession. It is a charming plant for either a rockwork, patches in borders, or, grown in rather poor soil, forms a beautiful edging for a bed of taller plants.

BEDDING OUT SCARLET AND OTHER GERANIUMS IN POTS.

BY F. E., COUNTY OF DURHAM.

HAVING found this year such a decided advantage in bedding out

Geraniums *in pots* (particularly the scarlet), to turning them out in the ground without, I wish to make it known, feeling sure it will be generally adopted, if once tried. It was suggested to me last year by a most successful amateur, who is ever ready to communicate his experience for the advantage of others.

In damp situations, and where there is not much sun, the scarlet Geraniums are apt to go to coarse leaf, losing the distinctive character of their respective foliage, and the blooms are few and small. We have found, by retaining the plants of one year's growth and the early spring cuttings in separate *pots*, they are saved the check which disturbance of the roots when in a growing state invariably occasions; their progress is not arrested; they flower sooner, larger, and more abundantly than by the old plan.

The Commander-in-Chief, Cottage Maid, etc., retain their distinctive variety of foliage in great perfection. Another great advantage is, they are so much sooner housed on any sudden change of the weather, and after that can be attended to at leisure; are also saved the second check which indiscriminate potting in autumn occasions, often leaving the plants sickly through the winter.

The convenience of getting them housed in less time, on the occurrence of sudden frost, was one great object sought for in this experiment, my friend being his own *greenhouse gardener;* but he found the greatest improvement both in bloom and foliage on these plants, and it is quite as useful where more hands are kept, because that always supposes a larger number of plants required.

My oldest larger plants are seldom kept longer than the second year. The young plants, being large enough for all bedding purposes, are more bushy, and more manageable in winter.

COLLECTING AND DRYING SPECIMENS OF PLANTS.

BY A FOREIGN BOTANICAL COLLECTOR.

OBSERVING, in a recent Number of your Magazine, that information is requested by a correspondent on a successful mode of collecting and drying specimens, the following is a method I have adopted most extensively, with very satisfactory results. In selecting specimens for drying, care must be taken that they exhibit the usual character of the species; no imperfect or monstrous shoot should be made use of. If the leaves of different parts of the species vary, as is often the case in herbaceous plants, examples of both should be preserved. The twig should not be more woody than is unavoidable, because of its not lying compactly in the herbarium. If the flower grow from a very large woody part of the trunk, as is often the case, as in some Malpighias, Cynometra, etc., then they should be preserved with a piece of the bark only adhering to them. It is also very important that ripe fruit should accompany the specimen. When the fruit is small, or thin, or capable of compression without injury, a second dried specimen may be added to that exhibiting the flowers; but when it is large and woody, it must be preserved separately. Next to a judicious selection of specimens, it is important to dry them in the best manner. For this purpose various methods have been proposed; some of the simplest and most practical may be mentioned. If you are in a country where there is much sun heat, it is an excellent plan to place the specimen between the leaves of a sheet of paper, and pour as much dry sand or earth over it as will press every part flat; leave it in the full sunshine, and it will generally dry in a few hours. But in travelling, when conveniences of this kind cannot be had, and in wild uninhabited regions, it is better to have two or more pasteboards of the size of the paper in which your specimens are dried, and some stout cord or leather straps. Having gathered specimens until you are apprehensive of their shrivelling, fill each sheet of paper with as many as it will contain; and having thus formed a good stout bundle, place it between the pasteboards, and compress it with your cord or straps. In the evening, or at the first convenient opportunity, unstrap the package, take a fresh sheet of paper, and make it very dry and hot before the fire; into this sheet so heated, transfer the specimens in the first of the papers in your pscknge; then dry that sheet, and shift into it the specimens lying in the second sheet, and so go on till all your specimens are shifted; then strap up the package anew, and repeat the operation at every convenient opportunity till the plants are dry. They should then be transferred to fresh paper, tied up rather loosely, and laid by. Should the botanist be stationary, he may dry his paper in the sun; if the number of specimens for preparation is inconsiderable, put them between cushions, in a press resembling a napkin press, laying it in the sun, or before a hot fire. It is extremely important that specimens should be dried quickly, otherwise they are apt to become mouldy and rotten, or black, and to fall in pieces. Notwithstanding all the precautions that can be taken, some plants, such as Orchideæ, will fall in pieces in drying; when this is the case, the fragments are to be carefully preserved, in order to be put together when the specimen is finally glued down. In many cases, particularly those of Coniferæ, Ericæ, etc., the leaves may be prevented falling off by plunging the specimen, when newly gathered, for a minute into *boiling* water. The great object in drying a specimen is to preserve its colour, if possible, which is not often the case, and not to press it so flat as to crush any of the parts, because that renders it impossible subsequently to analyse them. When specimens have been thoroughly dried, they should be fastened by strong glue, not gum, nor paste, to half a sheet of good stout white paper; the place where they were found, or the person from whom they were obtained, should be written at the foot of each specimen, and the name at the lower right-hand corner. If any of the flowers or fruits, or seeds, be loose, they should be put into small paper cases, which may be glued in some convenient place to the paper. These cases are extremely useful; and fragments so preserved, being well adapted for subsequent analysis, will often prevent the specimen itself from being pulled in pieces. The best size for the paper appears, by experience, to be 10¾ inches by 16½. Linnæus used a size resembling our foolscap, but it is much too small; and a few employ paper 11¼ inches by 18½, but that is larger than is necessary, and much too expensive. In analysing dried specimens, the flowers or fruits should always be softened in boiling water; this renders all the parts pliable, and often restores them to their original position. In arranging specimens when thus prepared, every species of the same genus should be put into a wrapper, formed of a whole sheet of paper, and marked at the lower left corner with the name of the genus. The genera should then be put together, according to their natural orders. To preserve plants against the depredations of insects, by which, especially the little Anobium castaneum, they are apt to be much infested, it has been recommended to wash each specimen with a solution of corrosive sublimate, in camphorated spirits of wine; but, independently of this being a doubtful mode of preservation, it is expensive, and in large collections extremely troublesome. I have found that suspending little open paper bags filled with camphor, in the inside of the doors of my cabinets, is a far more simple and a most effectual protection. It is true that camphor will not drive away the larvæ that may be carried into the herbarium in fresh specimens; but the moment they become perfect insects, they quit the cases without leaving any eggs behind them.

TREATMENT OF SOLANUM JASMINOIDES.

BY MR. WALTER SYKES, GARDENER AT HOPE HOUSE, NEAR MANCHESTER.

Climbing shrubs comprise, for the most part, some of the most elegant forms of vegetation, and present claims to regard of which few are unconscious. As they are far from being cultivated in England to the extent they merit, I am induced to bring the above-named handsome flowering evergreen plant to the particular notice of the readers hereof.

Among the species of *Solanum*, there are scarcely any now grown which make the slightest approach to a climbing habit, and a still less number that exhibit the gracefulness of the one here brought forward. Being likewise an evergreen, it is rendered doubly valuable.

I have been unable to procure any certain information relative to its native country, or introduction to Britain. But I obtained a plant of it, from the Glasgow Botanic Garden, three years since, and was told it came from South America. The first time I saw its very interesting flowers was at the Royal Gardens at Kew, in September. It was there kept in a greenhouse, planted in a pot, and trained round a small circular trellis. The blossoms were borne liberally in *copious panicled clusters*, each having from eight to twelve opened at the same time, and diffusing a delightful fragrance; they are waxy white, with a bright yellow centre, each flower three parts of an inch across, and somewhat like (in clusters) the *Hoya carnosa*.

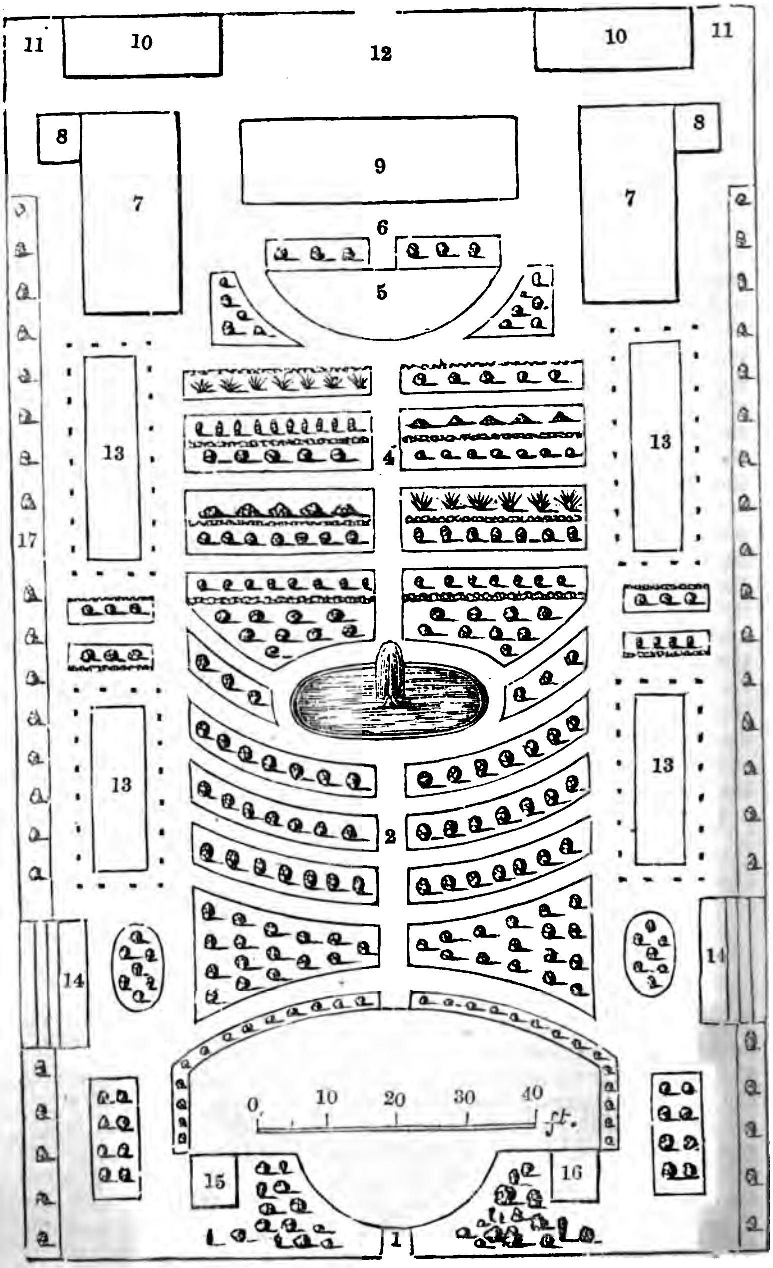
After that period I observed it continued blooming during the autumn; it also created a very pretty feature in the greenhouse throughout winter. In the summer, it commenced flowering in May, and in yet greater profusion—the plant being kept in its old position—and bloomed up to December. In March following I obtained a strong plant from Glasgow, and planted it in an open bed (out-door) appropriated to climbing roses and similar objects, and fastened it to an erect pole. It there flowered very freely for several months, continuing in undiminished beauty to the end of November. The frost then destroyed the flowers, but the evergreen foliage remained uninjured; and in the ensuing spring the plant pushed anew, and every lateral shoot terminated in a cluster of flowers. Another plant I trained to a wall, and it flourishes amazingly, covering at this time the wall, ten feet high and thirty feet wide. The greenness of the young shoots, and the size, form, and surface of the leaves, give it the aspect of some species of *Jasminum*, on which account the specific name has been given. It thrives well in a loamy soil, with a trifling admixture of heath-mould and sand, and does not need a very large pot. It can be trained spirally round any small wooden trellis or pillar, either in the greenhouse or out-door, and will produce a long succession of its delicate flowers through the summer, autumn, and winter months. It does not require much water through the winter, only to be kept just moist.

It is entitled to a place in every greenhouse or flower garden.

REMARKS ON THE CALYSTEGIA PUBESCENS, OR DOUBLE-FLOWERED BINDWEED.

BY F. E., COUNTY OF DURHAM.

This pretty flowering plant has not obtained in the Cabinet the notice I think it deserves; it is a most useful pretty climber, planted at the foot of roses against a wall, as, when they have done blooming, the foliage is generally shabby, and the stems bare. The Calystegia covers them with its little blush, rose-like, double flowers and bright green leaves, and blooms till the frost destroys the flowers. It does best in a dry and sunny situation; in the reverse, it will produce fewer, smaller, and paler flowers. It is very pretty mixed with the *Tropæolum Canariensis*, whose luxuriant fantastic wreaths continue for many months to conceal and adorn the earlier plants, which are by the time they flower out of bloom and condition.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DESIGN FOR A FLOWER GARDEN.

BY T. RUTGER, ESQ.

The accompanying design may serve to throw out a few hints for the formation of a Florist's Garden, which will be easily explained by a reference to the numbers as shown on the plan, viz.: 1. Show-house for plants. 2. Dahlia-ground. 3. Pond, with a fountain. 4. Bed, for choice flowers, parted by dwarf yew hedges, or some other material. 5. Plant-house. 6. Stock-hole. 7. Span-roofed houses, built north and south, for plants. 8. Stock-holes. 9. Platform for placing plants out in the summer. 10. Sheds for potting, etc. 11. Rubbish-holes. 12. Compost-ground. 13. Sites for awning over, for Tulips, Carnations, etc. 14. Auricula-stages. 15. Stock-hole. 16. Tool-house. 17. Narrow borders against the walls, for creepers. The clumps with no numbers given may be furnished with flowers, as taste may direct. It will be perceived that the principal entrance to the garden is through the show-house, and at the opposite extremity there is a way open, to take in compost, and to wheel out rubbish. In laying out a garden of this description, other appendages than those given in the design may be added, if found to be necessary, by enlarging the ground.

IMPREGNATING AND RAISING CARNATIONS AND PINKS FROM SEED.

BY FLORISTA.

I should not have troubled your readers with the following remarks, had not an article on raising seedling Carnations (recently printed in a contemporary Magazine) been greatly calculated to mislead the inexperienced florist. Persons accustomed to raise seedlings never think of saving the seed from single flowers. I should say that from such seed there would not be a moderately good flower in *ten thousand*. The only fault with at least two-thirds of our present varieties is, that they are *too thin* of petals, and will not form a good crown, which is an indispensable property in the criteria of a fine Carnation and Pink. I ask, what can look more meagre than the half-double flowers?

For the information of your readers, I will detail my mode of proceeding. I select such flowers as are *perfectly double*. That such flowers may produce seed, it will be necessary to let every bud remain to bloom. When they are fully expanded, and the pistils assume a *glittering icy appearance*, take any one half-expanded bloom, and tear it open, when will be seen the apices (anthers) containing the pollen, or dust; take one of these, and, if not already burst, open it, and draw it along the pistils (thread-like terminating horns) till you see some of the powder adhering to them. If this has been properly done, the bloom will close in two or three hours; and if no alteration takes place, repeat it till it does. In two or three days after impregnation has taken place, cut off all the other buds, and remove the plant to a situation where it will get plenty of sun; keep it well supplied with water, and protect the capsule (closed pod) from rain, by placing a square piece of thin board or other material upon the stick, just above it; gather the seed when ripe, and *keep it in the pod* in a well-corked phial. It will be also necessary to protect the pod from earwigs, which is best done by winding a little fresh sheep's wool round the stick and stem; they will not attempt to pass over it, as it entangles them.

These directions apply equally as well to Pinks, with the exception that the bloom from which the pollen is to be taken must be opened before it begins to expand, or the apices will all be burst, and the pollen gone.

WHEN TO REPOT THE CAMELLIA.

BY A TWENTY YEARS' PRACTITIONER.

RECENTLY noticing that a correspondent asks for information on this subject, I am induced to supply the following particulars, to meet the Lady's request.

Repotting.—This should be done *every year*, if healthy plants are desired. The best time is when the young shoots have just *completed their growth*, which is indicated by the lower part of them turning brown, and *the embryo blossom buds just seen* at the extremities. At this time as much of the old ball as can be done without damaging the roots must be taken away. The compost must not be in a soddened wet condition when used for potting, as in that state it is liable to be pressed so as to become hard. In filling in the compost, it is advisable to put in indiscriminately a few lumps of chopped turfy loam; this tends to prevent the matting of the roots in any particular part, but allows them more regularly to push forward, by each portion of the soil being kept in an equal degree of moisture, which is an essential in successful culture. After repotting and watering, the plants require to be shaded for a few days, during the middle of the day, when there is hot sun. Those plants intended to bloom as early as the end of October or November should at once be placed in an airy greenhouse, and have the foliage syringed every morning, and in the evening about five o'clock. Where the greenhouse can be closed at that time for a few weeks, it would very materially contribute to the setting of the flower-buds to do so. Such plants as are required for a later blooming season must be kept in the open air, and in a sheltered situation; but if open to mid-day sun, a canvas covering is found to be serviceable, and the foliage retains its vigorous green hue. The best compost is equal parts of strongish turfy loam (chopped, not sifted), peat, and old well-rotted manure, with a sprinkling of bits of charcoal. A liberal drainage is indispensable to success.

A principal feature in management is a proper attention to watering at the root, not only to obtain vigorous-growing plants, but to retain the flower-buds when formed; if this be neglected, or done carelessly, the consequence is, they will certainly drop off. For a few weeks after repotting, as much water at the roots is not required as when they have pushed afresh, but to promote an early establishment, the syringing over the tops, as before mentioned, is indispensable. When the new roots begin to push freely, then the supply must be freely given, taking care that the *entire ball* of soil is alike moistened, to effect which the surface must be kept even. If this is not done, the soil at the sides will filter down lower than the old portion of the ball of roots, and whilst the latter is kept dry, the exterior tender roots will be soddened, become unhealthy, and decay. Soft water is essentially necessary for use, and occasionally a good watering with liquid manure; this latter is far preferable to mixing manure with the compost at the time of potting. As the plants approach the period of bloom, a gradual increase of water is found necessary, but in every stage avoid *excess*, and *regularity* realizes every desired success; and by bringing plants into heat at successive periods, a blooming season can be extended from the end of October to April. The temperature of a house for early blooming plants is regulated so as to be, during the growing of the shoots, about 50 degrees at night, and a little above 60 by day. The after period of forming the buds till they expand is about 60 by night, and near 70 by day; by this attention in culture and temperature, a fine bloom of plants may be had from early in November, and which may be kept up to May or June.

ON IMPREGNATION OF FLOWERS FOR RAISING SUPERIOR HYBRIDS.

BY A COUNTRY CLERGYMAN.

If we knew a person anxious for the attainment of some pastime combining dexterous manual management with considerable intellectual exercise, we do not know of one to whom we could more confidently point him than the pursuit of horticulture and floriculture. There is in the cultivation of flowers a charm for the most vacant mind; they also open up a field of study for the man of most austere thought; here, also, the most refined mind, alive to loveliness in every form, and beauty in every phase, finds ample scope for admiration: true, indeed, "Solomon in all his glory was not arrayed like one of these."

One of the greatest pleasures attendant on the pursuit of this art consists in raising new and improved varieties of flowers; for, however beautiful flowers naturally are, there is no denying that they are doubly so when they come from the hands of the skilful hybridizer. In doing this, we are only taking advantage of the known laws that govern vegetable reproduction; it is, on a small scale, art dictating to nature, and to that, in a great measure, we owe our many improved

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much has been done; it is an employment full of the most pleasant
excitement, and one to which we would invite all amateurs to
share in.

As the object of hybridizing is to improve in form and colour, *only the* most perfect formed of flowers ought to be chosen for *this purpose*; little advance need be expected, unless that rule be *strictly* attended to, as flowers that have been artificially improved *are very* apt to run back to their originals, unless urged on by the *same* superior attention that has brought them so far as they are. The plants to be operated on must not only be of the best and most perfect kinds, but they must also be in a high state of health, otherwise good seed cannot be obtained. When the flowers of a plant, intended for the seed-plant, are about to open, and just before they expand, the petals must be gently opened, and with a fine pointed scissors cut out all the stamens, taking care not to hurt the stigma. The reason for thus early cutting out the stamens, is to prevent the pollen on them from coming in contact with the stigma, which would defeat any attempts at cross impregnation, by being done in the natural way. The plant to be operated on and the plant

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Now will be a good time to cross the many varieties of the Calceolarias; some of the best shrubby ones may be impregnated with the finest formed and marked of the herbaceous ones, as they are not only more easily kept, but, with good management, make finer specimens, and the herbaceous and shrubby ones cross quite freely. Fuchsias may now be done also, operating with those having flowers of the largest size, of very clear distinct colours, and marked contrast. We would recommend the amateur to cross many of his perennials of distinct and opposite colours, such as Phloxes, Mimulus, Pentstemons, etc.; we need not mention Geraniums, Roses, Bouvardias, etc.

HEATING A GREENHOUSE, ETC., WITH GAS

BY JOHN BENSON, ESQ., OF LIVERPOOL.

In your Magazine for 1852 (page 282) and 1853 (pages 85 and 95) are observations upon warming conservatories, greenhouses, and pit-frames, by means of pipes or flues being heated with gas. I tried the system recommended with success; but I found I had to contend with an escape, more or less, of gas into the houses, by which the air varieties of fruits and flowers. The field of experiment is boundless as the extent of nature itself. Thousands of flowers that our fathers looked upon as the pride and glory of their gardens, we now look upon as almost worthless as plants of ornament. Were some old amateur of half a century ago to have a look at our gardens now, he would be bewildered by the blaze of beauty that would meet his eye; the change is not greater in form than in substance; the style of laying out gardens has advanced, as well as the productions with which they are enriched. For the majority of our most beautiful varieties of flowers we are indebted to the skilful hybridizer; he soon gains a wonderful power over the colour and form of vegetable existence. We shall suppose him admiring some beautiful flower, but, alas! it is too delicate for our surly climate; it comes from some country where frost never congealed its flowing sap, or blighted its opening beauties; still he admires and covets it; he has some of the same family in his garden, hardy fellows, that brave every blast; but they want the beautiful colour and form of their exotic relation. Our amateur is one who has studied the structure and functions of plants, and the laws by which those functions are governed in their operations; he thinks he may transfer the beautiful inflorescence of the exotic to its more hardy relations in the garden. And he does so: art triumphs over all, his skill and forethought are abundantly crowned with success. In thousands of instances has this transfer of inflorescence taken place, to the gratification of every admirer of nature's most lovely productions. The skill of the artist is rapidly changing the face of the floral world; a standard of perfection has been laid before the florist, and all are bent on its attainment. The art, however, is but in its infancy; there is not that precision and certainty in results which we think will yet be attained. However, much has been done; it is an employment full of the most pleasant excitement, and one to which we would invite all amateurs to share in.

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In trying to gain a flower to the garden, it in general holds good that seedlings from crossed flowers assume more of the blossom of the male plant, and in general character and hardiness the features of the mother, or seed-plant, prevail; that is worth recollecting, when endeavours to produce the inflorescence of an exotic to stand our climate is the object of crossing. The above rule will also apply in the case of plants of bad habit, as many fine flowers often turn out. By attention and perseverance, the flowers of a plant of bad habit may be transferred to one of the same family of fine habit, by impregnating the one of fine habit with pollen from the one of bad habit. The exact flower, in form and colour, may not be produced, but a near approach may, and often does turn out, and very frequently something much superior.

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In your Magazine for 1852 (page 282) and 1853 (pages 85 and 95) are observations upon warming conservatories, greenhouses, and pit-frames, by means of pipes or flues being heated with gas. I tried the system recommended with success; but I found I had to contend with an escape, more or less, of gas into the houses, by which the air became contaminated in some degree, to the injury of the plants. I could not observe any fissure anywhere for the escape of the gas, and no doubt it issued through the porous materials of the pipes or flues. My houses were, however, well warmed by means of the heated gas, and during the severest part of the winter of 1852-53 the thermometer could be kept up to 65 degrees through the night.

Subsequently I noticed some descriptive particulars in the Magazine for 1854, that by means of hot water conveyed in metal pipes of the usual kind, which water had been heated with gas, the method had been tried and answered perfectly. I therefore had two plant-houses and two pit-frames fitted up in the following manner. It is necessary for me to observe that my residence is near to a public road, along which gas-pipes are laid, and thus advantageously circumstanced. I had a suitable-sized boiler fixed in the shed behind the houses (it was in the form of what is called a saddle boiler, broad and shallow), underneath which I had the gas brought, and it was applied to heat the boiler by four rings of jets fixed near to each corner of it, each ring having six jets; a suitable opening was left to light the jets, a pipe fixed through the wall to take away the extra fume of the gas, and a supply of water for the boiler was provided. The pipes I used are of three-inch bore; I have them fixed along the fronts, flow and return, and my houses being double-roofed, with stage up the middle, I had a pipe also under the centre of the stage extending its length. In the two pit-frames I had only a flow and return pipe along the front. The gas was lighted during the afternoon or evening, as requisite, so that the water was sufficiently heated to warm the houses properly at the early part of the night. The gas was usually put out, in the severest part of winter, about nine o'clock, and the houses kept warm till morning; but, if necessary, the gas may be allowed to burn all night without the least danger. The cost of heating is very trifling, and the expense of fitting up is comparatively small. The air of the house is perfectly sweet, and in it the plants flourish admirably.

The advantages of heating in this mode are several. Coals are not required, consequently there is not any smoke, which is a matter of importance where the plant structure is situated near the dwelling-house; and the cost of the gas is not one quarter that of coals. There are not any ashes to produce the nuisance of dust, which, falling upon plants, is always injurious to them. It is ready of application; if a sudden frost or cold wind set in, the gas can immediately be turned on and lighted by any person at hand. The last winter was a severe one, but my houses and pits were perfectly warmed. Each structure is thirty feet long. I have tested the application of gas with hot-water piping, and proved its superior advantages, in economy, cleanliness, ease of adaptation, and certainty and safety in operation. It is particularly valuable for heating plant structures which are attached to the dwelling-house, or close to the flower garden; smoke always being a nuisance, by blackening the flowers and foliage, and closing up their pores.

REMARKS ON THE AURICULA BLOOM OF 1855.

BY W. BAILDON.

THE Auricula, with its beautifully powdered flowers, is one of the rarest of Flora's gems. The rich and varied colours which it possesses, especially in the classes called selfs and alpines, added to its exquisite fragrance, render it one of the most delightful and fascinating of florists' flowers.

In the spring of 1855, one of the coldest on record, we have had a most unfavourable season for blooming the Auricula. The ungenial weather which prevailed almost unremittingly up to the period of the bloom was against the development of fine flowers. They were retarded also at least three weeks beyond their usual time of flowering; but, notwithstanding all these drawbacks, there were some magnificent flowers, which were really worth noticing. First, in green edges was the old favourite, Leigh's *Colonel Taylor*, which, in the estimation of many, stands at the head of the class. It has, however, two defects; the pips are too starry or angular, and the paste is rather thin, or deficient in density. I have seen it on one or two occasions without either of these faults. It was very fine, and no collection should be without it. Page's *Champion* was also in magnificent character. It has a rich violet ground-colour, and a bright green edge, and I should say is the best flower in this class. The pips are round and flat, the tube, however, is not quite round. Litton's *Imperator* and Booth's *Freedom*, usually so fine with us, were this year quite the reverse. I did not see a good bloom of either. I was much pleased with Barlow's *King*, an old variety. It has a fine dense paste, quite round dark ground, and good green edge. Then there was Howard's *Lord Nelson*, another old variety, also well done. A dark green edge, black ground-colour, and fine yellow tube; the paste, however, is rather coarse. Beeston's *Apollo* is much in the way of this variety, and I think no improvement; the tube is too pale, and the plant is apt to throw too many offsets, so that it is difficult to keep a fine plant. Clegg's *Lady Blucher* is a light green edge, with fine paste, and rich yellow tube; the pips are, however, rather dentated. A nice variety is Lightbody's *Lord Lynedoch*. The pips are beautifully round and flat, with fine dense paste and dark ground-colour. Lightbody's *Sir J. Moore* was in no character at all, nearly approaching a white edge, and is, I fear, a sportive variety. Another first-rate sort is Hudson's *Apollo*, much in the style of *Colonel Taylor*, but with rounder pips. Hepworth's *Robin Hood* was very fine and distinct; the tube is rather too pale. Falkner's *Ne plus ultra*, a very old sort, was regular and neat, and is yet a match for many new ones. Ashton's *Prince of Wales* was also very fine; it has a very rich yellow tube, dense paste, and fine green edge; the ground dark, but rather narrow.

In grey edges, there were some capital flowers. At the head of the class stands Cheetham's *Lancashire Hero*, but unfortunately it is a late variety. I had it in good bloom till June 10th. Kenyon's *Ringleader*, however, is its equal, when it can be caught in fine character; but it unfortunately has one great fault—it is so difficult to get it expanded. It requires very fine and warm weather. These two varieties, in proper character, are very near approaches to perfection. Another first-class flower is Sykes's *Complete*, and, as a variety to depend upon for exhibition, superior to the two varieties previously mentioned. It is very neat; its only fault is the tube being rather green. Fletcher's *Mary Ann* is always fine; it has a very fine paste, and the edge, in my estimation, the most distinct grey in the whole class. If *Lancashire Hero* possessed the fine paste and distinct edge of this variety, nothing more could be desired. Fletcher's *Ne plus ultra* is a very large variety, and was very fine. It is rather unsteady, but when caught, it is a magnificent flower; it has a fine grey edge and dark ground-colour, but the pips are rather dentated. Lightbody's *Sir Charles Napier* is a new variety, and has been described as a beat on *Ne plus ultra*. It is, however, in my opinion, greatly inferior to it; the paste is angular, and the pips very starry, or pointed. It scarcely belongs to any class, being too white for a grey edge, and too grey for a white edge, which is another great drawback. Another new variety of Lightbody's, *James Dickson*, is a far superior flower to the last, and will be a first-rate sort. It has the finest paste and the most distinct black ground-colour of any variety I know, with a fine tube and good edge; the paste is quite round, but the pips rather starry. Dickson's *Lady Jane Grey* was also very distinct and fine, possessing great substance and good properties. There were many others in this class, viz. *Conqueror of Europe*, Kent's *Queen Victoria*, Grime's *Privateer*, all worthy of extended cultivation. *Prince of Wales*, described as a green edge, was also fine as a grey edge, which I think is its best character. It is good in either style. Oliver's *Lovely Ann* appears to be a favourite in some localities. I see, at one exhibition, it has had a silver medal awarded to it. It is not much admired here. It is a coarse flower; in its general character neither green nor grey, but what would be termed by many a mongrel. It is, however, a very robust and hardy variety, and I should presume that the honours awarded were for specimens of plants more than for any fine qualities in the flowers.

The white-edged class is a favourite with me, and there are some magnificent flowers in it. As a first-class variety, I may mention Hepworth's *True Briton*. It is a flower of great substance, and requires fine sunny weather to expand. The pips are large and round, the ground a dense black, with fine edge and paste. Cheetham's *Countess of Wilton* has been finer this season than I ever remember to have seen it. The pips are remarkably round and flat, the ground dark and very regular, with fine tube and paste.

The edge at times is rather deficient in density. It makes a handsome truss, and taken altogether, is a very splendid variety. Then there was Ashworth's *Regular*, perfection itself, as far as colour and proportional properties go; the pips are rather small. Summerscale's *Catherine* is also a fine variety, well proportioned, and of fine quality; the pips, however, are not so round as could be wished. Taylor's *Favourite* will be a favourite, wherever grown. It makes a handsome plant, and throws up a fine truss; it is of tall habit. The pips of this variety also are rather angular. Lee's *Bright Venus*, in good condition, fully merits its name. It is a very lively variety, and of splendid habit. Campbell's *Robert Burns* is a nice variety, but, I fear, sportive; a rich violet ground and dense edge, but not so smooth as some sorts. A new variety, *Countess of Dunmore* (Lightbody), was not equal to the expectations formed of it. The tube is fine, the paste dense and fine, but the ground-colour is so irregular, the edge striking into the paste in several places, a style not at all to my taste. Of other varieties there were Taylor's *Glory* and *Incomparable*, Pott's *Regulator*, *Earl Grosvenor*, and *Lord Chancellor*, all very fine, and may be termed good useful sorts.

Othello (Netherwood) is still the finest self we possess. It is of splendid habit; colour dark rich maroon, paste very circular, and tube good. I should say the nearest approach to perfection of any self in cultivation. *Blackbird* (Spalding) was introduced as a beat on *Othello*. It certainly has many fine properties, but it has a sad drawback, in the stem being too short and weak, so that it cannot support a good truss. This is the worst fault an Auricula can have, for however fine its other properties, they cannot be seen to advantage. The footstalks are also too short, which make the individual flowers of the truss crowded, and does not give them room enough to expand. It is a very dark maroon in colour, the paste not so circular as *Othello*. *Meteor Flag* (Lightbody) is another new variety, of a blue colour; the pips are round and flat, and the colour improves as it ages, a property much wanting in this class. The paste, however, is not quite round. *Ivanhoe* (Lowe) is one of the prettiest selfs I have seen; the paste is so circular and the colour so rich, that it cannot fail to please. A strong plant, however, is apt to frill, which detracts from its merits. The colour, on opening, is black, changing as it ages to a rich violet-blue. Bradshaw's *Tidy* and Whittaker's *True Blue* are two very pretty varieties, of a deep blue. The plants are of small habit and delicate growth. *Admiral of the Blue* (Lightbody) is of a very rich blue, similar to, but I think an improvement on, Redman's *Metropolitan*. The tube is pale, and the paste rather thin. Martin's *Eclipse* is a very fine self, of a rich dark plum colour, with fine dense paste. *Mrs. Smith* (Smith) is an extremely rich plum colour, but the paste is starry—a great drawback. I am always pleased with the fine carmine-crimson of *Lord Leigh*; and though it is entirely without paste, yet it will always be admired for its colour. I long to see a self possessing the fine properties of *Othello*, with the rich colour of *Lord Leigh*. Gorton's *Stadtholder* is a bright canary yellow, and is the only yellow self worth cultivation. Other varieties worthy of note are *Blue Bonnet*, *Lord Primate*, *Royal Purple*, *Nonsuch*, etc.

In alpines there has been no improvement for many years. *Fair Rosamond*, shaded crimson, is still the best; *Conspicua*, shaded blue; *Queen Victoria*, nearly black, shaded with dark scarlet, and a few others. These are not grown in many collections, from a belief that it is impossible to raise good edged Auriculas where they are grown; but I have no doubt that, with care and attention to hybridizing, this difficulty may be overcome.

The Auricula has not improved so rapidly as the Pansy, the Picotee, or the Dahlia of late years. Some of the new varieties are inferior to many which are half a century old. Indeed, if we take the whole of the classes throughout, we shall find that some of the oldest flowers are still the best. This arises, in my opinion, from want of proper care in taking seed, and of hybridization. Nearly all the edged varieties have dark ground-colours, yet I have no doubt that, by means of hybridization, the rich blue of *Metropolitan*, the bright yellow of *Stadtholder*, or the scarlet-crimson of *Lord Leigh*, might be infused into them, and a variety of flowers produced which would excel in beauty any we now possess. The field for experiment is indeed wide, the shades of colour the flower possesses appearing to be unlimited. Though it is the oldest of florists' flowers, it may as yet be said to be only in its infancy, and no other class of flowers known to me will better reward the care and attention bestowed upon its improvement than this really magnificent tribe. (*Midland Florist*.)

REVIEWS.

The Gardening Book of Annuals. Comprising Concise but Accurate Descriptions of nearly 300 *Species; with full Instructions for their Cultivation, etc.* By WILLIAM THOMPSON. London: Simpkin, Marshall, and Co.

WE highly approve of this new publication. It is just such a book as was wanted, and is most admirably adapted to supply the previous deficiency. The descriptions are clear, sufficiently ample, have been compiled with much care, and are calculated to be very useful to persons desirous of making selections of plants, as to height, size, habit, colours of flowers, period of blooming, etc. We strongly recommend it to all our readers. The following extract will show the method of its descriptive details.

"CALLIO'PSIS TINCTO'RIA [from *kalos*, beautiful, and *opsis*, an eye or centre]. Syns. *C. bicolor; Coreopsis tinctoria*. Dyer's Calliopsis. *Composites*.—One of our most showy hardy annuals. Height 3 ft., much branched and spreading. *Lvs.* opposite, radical ones pinnate or bipinnate, the segments entire; upper ones, the segments cleft into linear lobes. *Fl-heads* terminal, 1½ in. across; ray florets broad, 3-toothed, orange yellow at tip, rich brown at base; disk brown, of tubular florets. There are many varieties of this species, differing in the proportion of brown to yellow; in some the entire flower is of that tint; in another, the *marmorata* of the seed lists, the two colours are curiously intermingled. Autumn-sown or self-sown plants produce the finest flowers. Blooms all summer. Rich soil. Native of Arkansas."

The Town Garden. A Manual for the Management of City and Suburban Gardens. By SHIRLEY HIBBERD. London: Groombridge and Sons, Paternoster Row.

THIS neat little book contains a mass of information and instruction admirably adapted to benefit persons either having or about to form, gardens in such localities. It has our hearty commendation, being both excellent and cheap.

NOTES ON NEW AND SELECT PLANTS.

118. BILLBERGIA VIRIDIFLORA (*Green-flowered*). Nat. Ord. *Bromeliaceæ.*—A *green-flowered* Billbergia is highly interesting. The lower portion of the flower-stalk and its leaf-like bracts are of a bright carmine colour; the flowers, tubular-shaped, are produced in a large terminal panicle; each blossom green, three inches long. It merits a place in the stove, and will contrast very strikingly with the blues and scarlets of the other species. (*Fig. in Flor. des Serres,* 1019.) It is in the collection of M. Van Houtte, at Gand.

119. CONVOLVULUS ALTHÆOIDES, var. *argyreus.* Nat. Ord. *Convolvulaceæ.*—It is a *dwarf bushy-like* plant. The floral stems of the plant (figured in *Flor. des Serres*) are about six inches long, each terminating with a flower of a bright pink, with a white throat, and two inches across. It blooms in profusion, and such humble bushy-like plants, with numerous large flowers, are very strikingly handsome. It merits a place in every greenhouse or pit frame. It will flourish in the open ground in summer, but will require winter protection in-doors. (*Fig. in Flor. des Serres,* 1021.) It is grown in M. Van Houtte's establishment.

120. GILIA CORONOPIFOLIA, var. *carnea-lutea.* Nat. Ord. *Polemoniaceæ.*—This handsome flowering variety is a seedling from *Ipomopsis elegans,* which it resembles, in its narrow fine foliage and growth of plant. The flowers are produced in a *large* terminal branchy pyramidal head, containing almost a hundred blossoms on each head. Each flower is three parts of an inch across, and the tube about as long. It is of a pretty nankeen-yellow colour, with a bright carmine rim around the mouth of the tube, which extends beyond in similar-

coloured rayed lines. It is exceedingly handsome, and worth a place in every greenhouse, or open bed in summer. It blooms from June to September, or later, by treatment accordingly. It requires a similar mode of treatment to the *Ipomopsis elegans*. See an article upon it in a previous volume of the FLORICULTURAL CABINET. (*Fig in Flor. des Serres*, 1022.) It may be obtained of M. Van. Houtte.

121. ABIES KÆMPFERII.—A new and charming *Conifer*, which Messrs. Standish and Noble have obtained from China, and who state, "it is *deciduous*, and somewhat resembles the Larch, but the foliage is very much handsomer, and the disposition of the branches quite distinct. The leaves are three to four inches long, of a lively green. It is a superlatively hardy plant, also exceedingly beautiful." In China, it is called the *Golden Pine*, from the rich yellow of its *leaves* and *cones* in autumn. It grows on elevated or mountainous districts, to a great height. Mr. Fortune measured one tree that was eight feet in girth, and 130 feet high. The trunk is straight.

122. BERBERIS BEALII, B. JAPONICA, B. INTERMEDIA.—These have stood through the past winter wholly unharmed, without any protection. Messrs. Standish and Co. state, "it is not too much to say that the above are the finest evergreen shrubs in cultivation." Their leaves are from fifteen to eighteen inches long, composed of several leaflets, and a terminal one; this latter is often five inches long by three broad, and the side leaflets are proportionately large.

123. CRYPTOMERIA JAPONICA VIRIDUS.—This plant is entirely free from the objection which in some situations the *C. japonica* is liable to, viz., its foliage becoming brown in winter. The *C. viridus* during the past winter retained its bright lively green colour. It is a charming tree.

124. DESFONTANIA SPINOSA.—This beautiful evergreen has much the appearance of a *Holly*. It is quite *hardy;* the foliage a deep green, and very ornamental. It bears an abundance of tube-shaped drooping flowers, each about two inches long, red outside and yellow within. A most charming plant.

125. EMBOTHRIUM FERRUGINEUM (Syn. *Somatia*). EMBOTHRIUM LANCEOLATUM.—The foliage of the former is peculiarly graceful, resembling very closely the finely cut fronds of a large Fern; and of the latter, *E. lanceolatum*, too much cannot be said. It forms a compact shrub, with large lance-shaped leaves, and long spikes of rich crimson flowers, which are borne in profusion, and very ornamental. They have borne the rigour of last winter without harm, but they flourish admirably in the conservatory or greenhouse.

126. EUGENIA UGNI.—A charming myrtle-like evergreen, bearing very fragrant flowers, which are succeeded by strawberry-flavoured berries; quite hardy, and handsome.

127. LAURELIA AROMATICA.—A handsome evergreen, with fleshy leaves, which are very fragrant. It is a native of the mountains of Chili. Quite hardy.

128. QUADRIA HETEROPHYLLA.—This interesting tree, which is said to be hardy, produces fruit about the size of a small walnut, with the flavour of the cocoa-nut.

129. RETINOSPORA ERICOIDES.—A very pretty *heath-like* CONIFEROUS plant, which is perfectly hardy. It is a valuable acquisition, having stood out at Messrs. Standish and Noble's during last winter without the least injury, remaining as green as it was last October.

The above shrubs and trees are grown in Messrs. Standish and Noble's nursery, whose testimony relative to the plants may be fully relied upon.

130. PHLOX, QUEEN VICTORIA.—The plant is of the *decussata* habit, robust, and stiff. The trusses of blossoms are large, each flower about an inch across, blush-white, with a large purple eye, and of exquisite form; blooming from July to the end of the summer.

131. ROSA VIRIDIFLORA.—The flowers in form are exactly like the common blush China Rose, and are produced as profusely, in trusses, of from ten to twenty blossoms in each. They are very double, and of a bright green colour. It has a very pretty appearance in the greenhouse, blooming freely during autumn and winter, as well as earlier, if managed properly. It is exceedingly interesting, and may be had cheap.

132. WILLIAMS'S EVERGREEN CLIMBING ROSE.—It is a seedling raised from the common hardy climbing *Ayrshire Rose*, fertilized with the *Yellow Tea Rose*. It has the rapid growth and elegant habit of *Ayrshire splendens*, whilst its glossy foliage and long *lemon*-coloured buds partake of the character of the Yellow Tea Rose. The flowers are of a creamy white, deliciously sweet-scented, and produced in long racemes of from twelve to twenty on a single shoot. It is a charming acquisition; quite hardy.

133. SALVIA RŒMERIANA.—It is of *dwarf habit*, a very free bloomer, excellent for bedding. The flowers are of a rosy carmine colour, and it blooms throughout the summer.

134. EREMURUS SPECTABILIS. Nat. Ord. *Asphodeleæ*. Syn. *Asphodelus Sibiricus*. A handsome, hardy, herbaceous perennial, a native of Altaic Siberia. The main flowering stem rises from three to four feet high, almost half of which bears a profusion of flowers, forming an ornamental pyramid; each blossom (star-shaped) is an inch across, of a sulphur-yellow, with large, bright, orange-coloured anthers, which produce a beautiful contrast. It is very ornamental during summer, and merits a place in every flower garden. It is in the Royal Gardens at Kew. (*Fig. in Bot. Mag.*, 4870.)

135. LEPTODACTYLON CALIFORNICUM. Nat. Ord. *Polemoniaceæ*. Syn. *Gilia Californica*. Mr. William Lobb sent seeds of this very charming plant from San Bernardino, in South California, to Messrs. Veitch. It is a low much-branched shrub, having a copious, small, heath-like foliage. The flowers are produced on the short lateral branches which adorn the principal ones, so as to form long racemes of bloom. The tubular portion of the flower is nearly an inch long,

yellow, and the fine divided front, an inch and a half across, of a beautiful rose colour, with a white eye; in appearance much like a large peach blossom or an Oxalis. The branches are clothed with flowers so numerously as almost to conceal the foliage. It blooms in summer, and merits a place in every shrub-border or bed, and being quite hardy, is rendered still more valuable. (*Fig. in Bot. Mag.*, 4872.)

136. Salvia carduacea (*Thistle-leaved*). Nat. Ord. *Labiatæ.*—In De Candolle's *Prodomus*, Mr. Bentham gives a descriptive list of 407 species of *Salvias*, and the one we now notice is the most distinct and remarkable of that vast number. It is a native of California, discovered about the same time by Mr. Douglas and Dr. Coulter, and now first introduced to our gardens by Messrs. Veitch, who received it from Mr. Lobb. It is perfectly hardy, and merits a place in every garden. The plant is perennial, and the floral stem is from one foot to one and a half high, erect. The leaves are ***thistle-like***, spiny, cobwebby, densely woolly beneath. The flowers are produced in large whorls, each a few inches apart, tier above tier up the main stem. Each blossom has a tube as long as the calyx, white; the limb (front of the flower) is gaping, one and a half inch across, and of a pretty lavender-purple colour. (*Fig. in Bot. Mag.*, 4874.)

137. Meyenia erecta.—Messrs. Rollison received it in 1854, from Sierra Leone. It was first discovered by Dr. Vogel, in the Niger expedition, and has been described in the "Niger Flora" by Sir William Hooker, who states it as the most beautiful plant of the south-west coast of Africa.

MISCELLANEOUS.

National Carnation and Picotee Society's Exhibition for 1855.—This annual treat was held at Oxford, on August 2nd, in the grounds of Magdalene College. The attendance of visitors was numerous, and though the number of flowers shown was less than half of what we have seen at former meetings, yet the excellence of the specimens was far superior to any we ever previously witnessed. The following were the successful flowers.

Nurserymen.—*Twelve Carnations:* 1st. Mr. Charles Turner, Slough, with Exit, Lord Rancliffe, Alonzo, Christopher Sly, Omer Pacha, Jacques, Admiral Curzon, Count Pauline, Poor Tom, Model, Julia, and Defiance. 2nd. Mr. John Keynes, Salisbury, with Lord Rancliffe, Squire Trow, Prince Albert, Justice Shallow, Owen Glendower, Sarah Payne, Falconbridge, Antonio, Flora's Garland, Omer Pacha, Rachel, and Admiral Curzon.

Twelve Picotees.—1st. Mr. Chas. Turner, with Mrs. Hobbs, Mrs. Norman, Eugenie, Mrs. Headly, Mrs. Drake, Lizzie, Helen, Finis, Sultana, Lady Grenville, Lord Nelson, and Lamia. 2nd. Mr. John Keynes, with Mrs. Headly, Prince of Wales, Mrs. Kelke, Countess, Lavinia, Queen Victoria (Green), Mrs. Norman, Finis, Mrs. Hoyle, Amy Robsart, Mrs. Barnard, Duke of Devonshire.

Amateurs.—*Twelve Carnations:* 1st. H. Steward, Esq., York, with Sarah Payne, Lord Rancliffe, Flora's Garland, Falconbridge, Poor Tom, Justice Shallow, Sarah Payne, Lord Rancliffe, British Hero, Black Diamond, unknown, and Squire Trow. 2nd. Mr. Samuel Eyre, Snenton, Notts, with Lord Rancliffe, Falconbridge, Prince Albert (Hale), Earl Spencer, seedling P. F., Lord Milton, King of Scarlets, Poor Tom, Admiral

Curzon, Firebrand, seedling, and Admiral Curzon. 3rd. Mr. R. R. Oswald, Birmingham, with Uncle Tom, Squire Trow, Magnificent, Admiral Curzon, Mr. Peto, Lorenzo, Christopher Sly, Madame Sontag, John of Gaunt, Premier, Jenny Lind, and Queen Victoria (Simpson). 4th. W. Belcher, Esq., Abingdon, with Prince Albert (Hale), Falconbridge, Lord Rancliffe, seedling C. B., Sarah Payne, Admiral Curzon, King John, Prince Albert, Lorenzo, Falconbridge, Firebrand, and seedling. 5th. Mrs. James Taylor, Snenton, Notts., with seedling, Prince Albert (Hale), Falconbridge, Madame Sontag, Splendour, Rev. I. Bramhall, Lord Milton, Lord Rancliffe, Lovely Ann, King of Scarlets, Admiral Curzon, and Lord Byron. 6th. Mr. James Maltby, Oxford, with Poor Tom, Misnomer, Benedict, Earl Grey, Count Pauline, Duchess of Gloucester, Admiral Curzon, Valentine, Rainbow, seedling, Mr. Hobbs, and Lord Rancliffe.

Twelve Picotees.—1st. Henry Steward, Esq., with Venus, Ganymede, Countess, Enchantress, Enchantress, Mrs. Barnard, Mrs. Keynes, Calliope, Countess, L'Elégant, Venus, and Duke of Devonshire. 2nd. Mr. R. R. Oswald, with Mary, Duke of Devonshire, Miss Walker, Alfred, Countess, Ganymede, seedling No. 21, Mrs. Kelke, Finis, Rosetta, Isabella, and Unexpected. 3rd. Mr. G. Kirtland, Bletchington, with Duchess of Bedford, Sebastian, seedling No. 8, unknown, Duke of Devonshire, seedling No. 6, Miss Charlotte, Duchess of Bedford, seedling No. 8, Lady Macbeth, Unexpected, and seedling No. 4. 4th. Mr. Elkington, Buckingham, with Diadem, Finis, Duke of Devonshire, Calliope, Calliope, Prince of Wales, Delicata, Prince Arthur, Duke of Devonshire, Mrs. Kelke, Sebastian, and Portia. 5th. Mr. Samuel Eyre, with Lord Nelson, Robin Hood, Amy Robsart, Duke of Devonshire, Green's Queen, Meg Merrilies, Little Harry Bertram, Annot Lyle, Little Harry Bertram, Venus, and Mrs. Bayley. 6th. Mr. Maltby, with Prince Arthur, Green's Queen, Bridesmaid, Lord Nelson, Portia, Miss Holbeck, Princess Royal, Lady Alice Peel, Duchess of Bedford, Jeanette, General Bem, and Amy Moss.

SINGLE SPECIMENS IN CLASSES. *Carnations.—Scarlet Bizarres:* 1, Splendid, Mr. John Keynes; 2, Admiral Curzon, Mr. C. Turner; 3, Mr. Ainsworth, ditto; 4, Admiral Curzon, Mr. Walker; 5, Lord Rancliffe, Mr. Keynes. *Crimson Bizarres:* 1, General Monk, Mr. C. Turner; 2, Oxonian, ditto; 3, Lord Milton, H. Steward, Esq.; 4, Jenny Lind, Mr. C. Turner; 5, Black Diamond, Mr. J. Keynes. *Pink and Purple Bizarres:* 1, Falconbridge, H. Steward, Esq.; 2, John of Gaunt, Mr. J. Keynes; 3, Sarah Payne, H. Steward, Esq.; 4, Falconbridge, Mr John Keynes; 5, Ditto, ditto. *Purple Flakes:* 1, Mayor of Oldham, Mr. C. Turner; 2, Jacques, ditto; 3, Julia (Nicklin), ditto; 4, Squire Meynell, ditto; 5, Squire Trow, H. Steward, Esq. *Scarlet Flakes:* 1, Defiance, Mr. Charles Turner; 2, Ditto, ditto; 3, Comet, Mr. John Keynes; 4, Justice Shallow, ditto; 5, Ditto, ditto. *Rose Flakes:* 1, Lady Ely, H. Steward, Esq.; 2, Aglaia, Mr. Charles Turner; 3, Poor Tom, Mr. John Keynes; 4, Flora's Garland, ditto; 5, Ditto, ditto.

Picotees.—Heavy Red-edged: 1, Mrs. Norman, Mr. J. Keynes; 2, Dr. Pittman, Mr. C. Turner; 3, Sultana, ditto; 4, Mrs. Norman, Mr. J. Keynes; 6, Mrs. Hoyle, Mr. Chas. Turner. *Light Red-edged:* 1, Mary, Mr. R. R. Oswald; 2, Barzilli, Mr. Charles Turner; 3, Eugenie, ditto; 4, Ditto, ditto; 5, Duchess of Bedford, W. Colcutt. *Heavy Purple-edged:* 1, Countess, H. Steward, Esq.; 2, Ditto, Mr. Charles Turner; 3, Countess, Mr. Charles Turner; 4, Lord Nelson, Mr. Samuel Eyre; 5, Ditto, ditto, *Light Purple-edged:* 1, Finis, Mr. Charles Turner; 2, Lineker's Seedling, Mr. S. Eyre; 3, Finis, Mr. Charles Turner; 4, Mrs. Keynes, Mr. John Keynes; 5, Ditto, ditto. *Heavy Rose-edged:* 1, Alice, Mr. Charles Turner; 2, Mrs. Drake, ditto; 3, Ditto, ditto; 4, Alice, ditto; 5, Ditto, ditto. *Light Rose-edged:* 1, Ariel, Mr. Charles Turner; 2, Barnard, ditto; 3. Mrs. Barnard, Mr. J. Keynes; 4, Miss Sainsbury, ditto; 5, Mrs. Barnard, ditto. *Yellow Picotees:* 1, Conrad, Mr. Charles Turner; 2, Gipsy Queen, ditto; 3, Aurora, ditto; 4, Malvolio, ditto; 5, Euphemia, ditto.

The best PREMIER CARNATION, selected from the whole exhibition: Puxley's Defiance, as exhibited by Mr. Turner.

The number of flowers shown were, *in classes*, 96 Carnations and 96 Picotees. *Single Specimens*, 146 Carnations and 124 Picotees. Total 472. Amongst these were several of the most superb *new kinds*, and which are only in the hands of two or three growers, consequently only few of their flowers were shown; but of the varieties previously sent out, and become general in the trade, the following obtained prizes according to the numbers annexed to each, which indicates its merit, and such kinds can with confidence be procured by persons desirous of possessing a selection of the best.

Carnations: Admiral Curzon 9, Falconbridge 9, Lord Rancliffe 8, Sarah Payne 5, Lord Milton 4, Flora's Garland 4, Squire Trow 4, Hale's Prince Albert 4, Puxley's Defiance 4, Justice Shallow 3, Black Diamond 2, Puxley's Jenny Lind 2.

Picotees: Finis 6, Lord Nelson 6, Mrs. Barnard 6, Duke of Devonshire 5, Venus 5, Mrs. Norman 4, Green's Queen Victoria 4, Mrs. Kelke 3, Mrs. Drake 3, Eugenie 3, Alice 3, Duchess of Bedford 3, Countess 3.

The classes to which they belong will be seen by referring to the stands and single specimens shown.

BRIEF REMARKS.

The Pisonai Tree.—This is one of the most magnificent trees, both in foliage and flower, perhaps that exists. It appears to have been introduced, during the Inca dynasty, into the valleys of Cusco, where, in a climate the mean temperature of which is sixty degrees Fahrenheit, it attains such a size as is never witnessed in the largest of our European forest trees. It was generally planted about villages; in that of Yucay, the country residence of the latter Incas, eight leagues from Cusco, there exist specimens of it five fathoms in circumference, and nearly seventy feet high. The foliage, of a deep green, is thick and spreading, and the leaf is in shape something like the Cinchona; it flowers in December, and is then one mass of carnation colour.—*J. B. Pentland, Esq., Bot. Reg.* xxv., 18, *Miscell.*

Böehmeria nivea, or Chinese Grass-cloth Plant.—A very beautiful fabric is manufactured from the fibre of this plant, first imported here in the form of handkerchiefs, and more lately to a considerable extent, being superior to any other kind of fabric for shirts. The genus belongs to the Urticaceous (Nettle) family.

On Destroying Ants.—I have not observed whether any satisfactory answer has been given to a query concerning the destruction of ants, by Q., in a recent number. If your correspondent has not yet found any remedy, I should recommend him to try what I have seen used with perfect success in the south of Europe, which is *garlic chopped small*, and laid across the ants' usual track. They dislike this so much, that it will completely drive them away, and the effect will last long after the smell has ceased to be at all perceptible. This, though it will not destroy them, will prevent the annoyance which Q. complains of in his conservatory.

Culture of Tropæolum tricolorum.—It has been discovered that the tubers of this plant increase with much greater rapidity when placed on the *surface*, instead of being plunged *under* the earth. It is also found of great value to the small and tender roots of *Tropæolum*, to place the pot in which they are grown within another pot, this obviates the necessity of using pots of so large a size, as would otherwise be the case, the outer pot preventing the rays of the sun from falling on the inner pot; the roots are therefore kept in a much cooler state with a smaller quantity of earth, a circumstance of great importance to the culture of this and all plants remarkable for their small and delicate roots; which, in order to preserve them from being overheated, and rapidly dried by the influence of strong sun, are often over-potted, and therefore in great danger of being saturated by inattention in over-watering, thereby causing the roots to decay.—*A Nobleman's Flower Gardener.*

On Edging for a Walk.—For several years I have had the following mentioned evergreen plants for edging to walks, and they combine neatness with beauty; they have been admired by all who have seen them. *Erica herbacea*, and its varieties, grow about four inches high, and are easily kept compact; mine are six inches in breadth, and they commence blooming about the middle of January, in warm situations, and continue one mass of bloom for several months. Flowering, too, at so dreary a season in winter, it is a very interesting object to have in view from the dwelling, or frequented walk. *Erica cinerea*, with its several varieties, also makes a very interesting and pretty edging. When out of bloom it has a neat and pleasing appearance; they bloom from July to the end of the summer. *Menziezia polyfolia alba*, blooms dwarf, when four to six inches high, and its beautiful pearl-white flowers produce a very pretty effect; it begins to bloom in June, and continues to the end of the season. There are others of the Menziezias, as purple, rosy red, etc., also several others of the Ericas which are suitable for the purpose; but the three named kinds are what I possess, and have so adopted. I have sandy peat to grow them in.—*Clericus.*

Carnations.—Your correspondent's remarks respecting the *colours running or sporting* of his Carnations will doubtless be read with interest. I for one am sorry to say that I have had half a dozen of my best flowers sport this season, and I am at a loss to what to attribute it. I certainly cannot say that high manuring is the cause of the evil; for in my case, having nothing but green manure by me, I had them potted without any manure at all. High manuring cannot therefore be the sole cause of flowers sporting, although no doubt more flowers run from that cause than any other, for they are not so liable to sport in the open borders in common mould, as in rich soil. I have generally noticed that in hot dry summers the flowers are very apt to sport; and I have no doubt that the season, as well as the soil, has a great deal to do with the evil. We generally find that Scarlet Bizarres, Purple Bizarres, and Scarlet Flakes are the classes that are most liable to run, being very rich and high in colour. I am of your correspondent's opinion, that manure-water should not be applied until the pods begin to burst; but it is a good plan to water them with a little clean soot-water, in order to keep the foliage of a good dark colour. The following compost has been recommended by an eminent grower for flowers apt to sport, or we may say for the more delicate kinds, which are the most likely to sport:—Three barrowfuls of good loam; one ditto old rotten cow-dung; two ditto ditto horse-dung; half ditto sand; half ditto lime rubbish, or old plaster, to be mixed well together twelve months previous to its being used.—*Florista.*

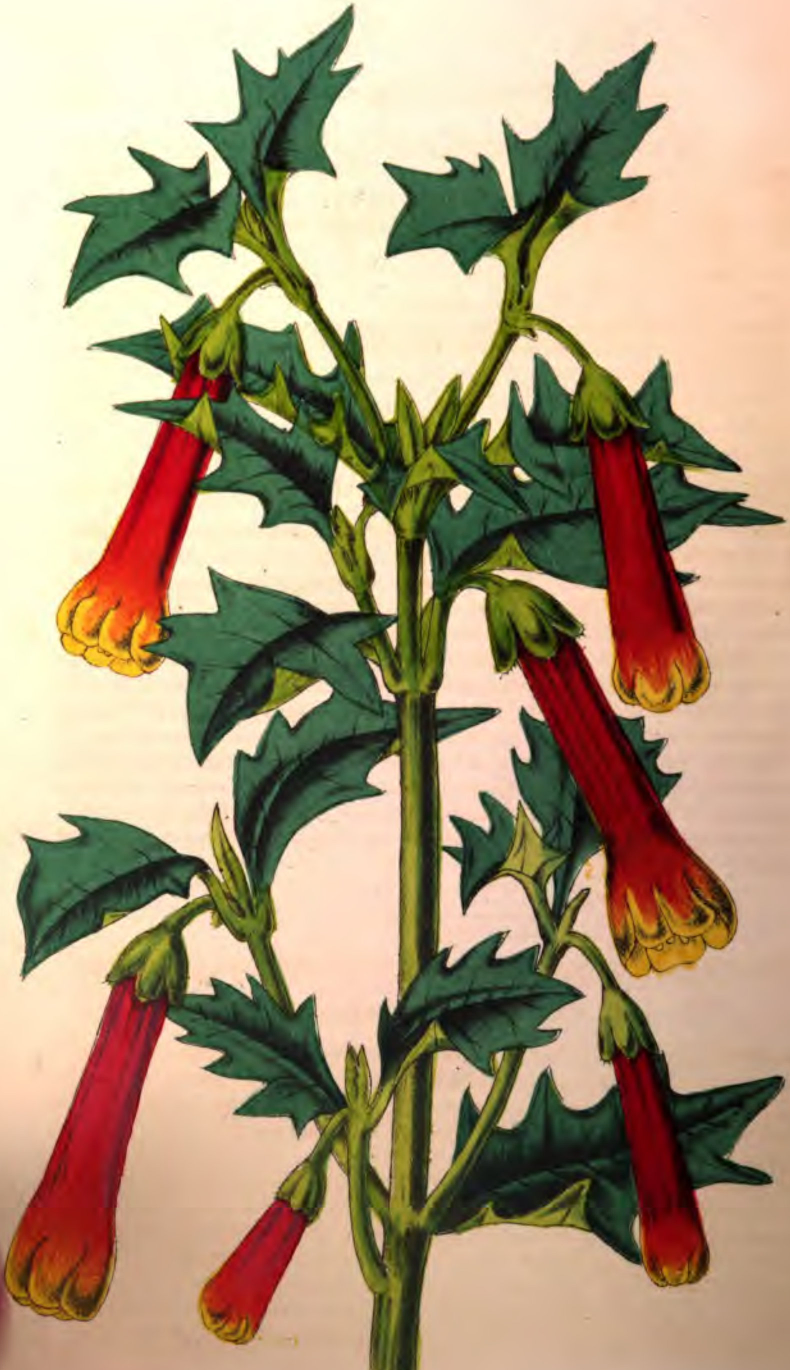
To take Impressions of Leaves.—Take green leaves of trees and flowers, and lay them between the leaves of a book till they are dry. Then mix some lamp-black with drying oil, and make a small dabber of some cotton wrapped up in a piece of small leather. Lay the dry leaf flat upon a table, and dab it very gently with the mixture till the veins of the leaf are covered; being careful not to dab it so hard as to force the colour between the veins. Moisten a piece of paper, or, what is better, lay a piece of paper between two sheets of moistened paper for several hours, and lay this over the leaf that has been blackened with the liquid; press it gently down, and then lay a heavy weight upon it and press it down very hard. By this means you obtain a very beautiful impression of a leaf with all its veins; even the minutest will be represented in a more perfect manner than they could be drawn with the greatest care. Impressions thus taken may also be coloured in the same manner as prints.

Sweet-scented Camellia.—Would your correspondent "James" inform me whether his sweet-scented Camellia is a single or double variety. If single it is no great novelty, as I have a seedling which has bloomed twice, and proved decidedly fragrant each time. To me the scent resembles that of a Wallflower, but not so strong, while others have compared it to a Hyacinth. It is large single variety, and bloomed first three years ago. Being anxious to get a double kind possessing the same property, I impregnated it with double varieties and obtained seeds, plants from three of which bloomed last year at two years old. No 1 was double, but it had no scent. No. 2 was single, and both in scent and shape resembled the parent. The 3rd was single, but without any scent. Last year the mother plant bloomed again, but I was not fortunate enough to save any seed either from that or the young sweet-scented one, No. 2. It is full of buds this year, and appears to be a very free bloomer; but I shall not be satisfied till I get a good-shaped double sweet-scented variety. "If "James's" plant possesses these qualities, it is certainly a valuable acquisition.—*John Hally, Blackheath.*

FLORAL OPERATIONS FOR OCTOBER.

Flower Garden.—*Hollyhocks: now* make new plantations of these noble flowers. *Auriculas, Polyanthuses, Carnations, Pinks,* etc., should be placed in their winter quarters, in a dry, sunny, sheltered spot, where a free circulation of air can be admitted on all proper occasions. Any plants out in the open beds, as *Lobelias,* etc., should be taken up and potted, for winter preservation, in pits, frames, etc. *Chrysanthemums* grown in the open ground, and required for blooming in-doors, should be taken up as entire as possible, and be potted with due care. All tender kinds of plants, as *Scarlet Geraniums, Verbenas,* in fact, every kind requiring winter protection, should be housed *immediately;* it is bad policy to put it off a single day longer. All plants like light; place them as near to the glass as convenience will allow. Prepare the *Tulip-bed. Dahlias:* let the *crown* of the roots be covered with a few inches deep of soil around the stems. Beds of *Pansies* be made. Shrubs of all kinds may be planted. *Roses* now planted SOON PUSH NEW ROOTS, and become well established before winter; the soil being somewhat warm excites the roots immediately. *Pinks* also may be planted in beds. *Shrubs, etc., forcing for winter bloom:* such as are to bloom early should be gradually prepared, potted immediately if required, and by the middle of the month introduce such as are desired to bloom by Christmas, into the house or pit. The kinds which are well deserving such attention are *Roses, Honeysuckles, Jasmines, Poinsettias, Azaleas, Kalmias, Persian Lilacs, Andromedas, Tree Carnations, Pinks* (of which *Anne Boleyn* is the best), *Rhododendrons, Rhodoras, Deutzias, Ribes, Spirea prunifolia, Mezereums, Gardenias, Cupheas, Heliotropes, Scarlet Pelargoniums, Eranthemums, Justicias, Corrœas, Chinese Primroses, Aconites, Mignonette, Primroses, Cinerarias, Stocks, Persian Iris, Crocuses, Cyclamens, Sweet Violets, Hyacinths, Lilies of the Valley, Fuchsia serratifolia multiflora, F. cordifolia, Oxalis elegans, Cactus truncatus, Salvia splendens, fulgens,* and *gesnerifolia. Tropœolum, Triomphe de Gand* and *Lobbianum, Achimenes picta* and *gigantea, Cestrum aurantiacum, Aphelandra citrina* and *Porteana, Brugmansia Knightii, Begonia Prestoniensis superba, B. Ingramii, B. manicata* and *manicata rosea, Gesneria zebrina, G. zebrina splendens, G. zebrina compacta, Lantana aurantiaca,* and other new dwarf hybrids, as white, straw, cinnamon, rose, pink, lilac, ruby, etc.; *Epacris,* many fine winter blooming; *Neriums.* Seeds of many annuals should now be sown in the border, and others in pots; such will bloom early next spring. *Brachycoma, Schizanthus retusus* and *Hookerii, Rhodanthe,* and *Salpiglossis:* seeds now sown in pots, plants potted off when strong enough, will bloom vigorously next spring.

GREENHOUSE, ETC.—If the stock is not housed, it ought to be done immediately. Care must be taken so that one plant may receive something like its proper treatment, without interfering materially with the well-being of its neighbours; and the tender ones must be placed in the best part, for protection from cold wind, etc. *Pimeleas, Leschenaultias, Aphelexis, Boronias, Gompholobiums,* and *Diosmas* are injured by being placed where there is a *current* of wind. Let each plant have all the space possible, and the robust large-leaved kinds and the very slender delicate sorts should be kept as separate as can be arranged, so as to allow a due circulation of air. Be careful that the pots, etc., be perfectly clean before arranged for their winter situation. Repot *Cinerarias,* etc. Let *Camellias* which are to bloom early be placed in a warmer situation, also any *Chinese* or *Indian Azaleas,* so that they may be gradually advancing. In watering the stock of plants, let it be done in the *early part* of the day, so that any excess may be dried up before evening, and damps be avoided, otherwise mouldiness will ensue. Thin away the flower-buds of *Chrysanthemums;* water occasionally with liquid manure. *Calceolarias:* pot off seedlings to bloom next season. *Pelargoniums:* the plants headed down some weeks back have now pushed shoots an inch or two long; these should be thinned properly. The plants must be repotted, in order to have the roots well established before winter. Shake off the soil, and shorten some of the long roots, so that young fibres be promoted, which is essential to the vigour of next bloom. Have a free drainage in the pots. Compost, turfy loam well chopped up, with an equal portion of sandy peat and well-rotted leaf-mould, and half the quantity of well-rotted dung. Give air to the plants in the daytime, and be careful not to give over much water at the roots, for if saturated they will be injured. Young-struck plants should have the tops pinched off, to cause the production of side-shoots, to render them bushy for next season. Repot some of the *Scarlet Geraniums* (so called) to bloom during the autumn and winter; they are charming ornaments. So with *the new Tree Carnations,* of which there are many very beautiful distinct varieties, deserving a place in every greenhouse and sitting-room.



DESFONTAINIA SPINOSA.

The Floricultural Cabinet.

NOVEMBER, 1855.

ILLUSTRATION.

DESFONTAINIA SPINOSA (Holly-leaved). Syn. *D. Hookeri.*

Sir W. J. Hooker states, "this splendid acquisition to our gardens has been long known in our Herbaria, but its place in the *Natural System* is still a puzzle." It belongs, however, to the Linnæan class *Pentandria*, and order *Monogynia*. It is a native of Valdivia, in Chili. A stiff erect-growing *shrub*. Mr. William Lobb forwarded it to Messrs. Veitch. It flourishes in the greenhouse, and plants having been tried out-doors, at Exeter and other colder localities, it proves to be *perfectly hardy*, growing and blooming freely. It is an evergreen of great beauty, and for its *foliage* alone it is worthy of all praise; but, from the fact of its producing an abundance of its charming pendulous flowers, it possesses a double claim on our admiration. It would be difficult to imagine a more charming plant. Its appearance is much like that of *Ilex dipyzena* but of a deeper green.

REMARKS ON THE PROGRESS OF FLORICULTURE, ETC.

BY THOMAS RUTGER, ESQ.

It must be gratifying to the lovers of floriculture to see the vast improvements that have been made of late years, and are still making in the culture of flowers, as well as that of their being disposed in masses, in accordance with the taste of the present day; and in these days of improvement in the arts and sciences, it is pleasing to see that horticulture in all its branches is keeping pace with the other improvements of the day. We have in a great measure to thank the press for the diffusion of knowledge gained, the tendency of which is to stimulate an onward course towards the development of the vast resources which still remain for investigation, and when brought to light, may prove highly beneficial. We are also greatly indebted to the individuals who, by search and application, have devised the means by which many things both for use and ornament have been discovered, and when discovered, have freely given to the public the result of their labour.

By such as have been thus liberally disposed, the *Cabinet* has, by their assistance, held on its course, and having now nearly completed its twenty-third volume, is a sufficient indication of the estimation it has been and is still held in, as a medium to offer to the public such articles on floriculture as may afford instruction as well as pleasure to the admirers of Flora. But while the *Cabinet* has many valuable contributors, it is to be lamented that there are persons still to be found who deprecate the idea of giving to the public what they have discovered anew in the art of culture. Some years ago, when I occasionally contributed articles to the *Gardeners' Magazine*, I was accosted by one in the profession, condemning the course I was pursuing, in giving to the public the knowledge I was in possession of. My reply was, that I considered it a duty devolving on every person to be useful to his fellow, as far as his capabilities would allow, and that it was on that principle I acted, and also for what I owed in return for the knowledge I received from others, who liberally and freely contributed to the general stock of knowledge. And even recently I know of an instance of a young man who, having contributed an article to the *Cabinet*, was given to understand by the gardener under whom he was employed, that if he persisted in the thing he must abide by the consequences. Query, was the gardener fearful that his pupil (for a pupil he was) would outshine his master? or was it through a narrowness of principle which made him thus act? Whatever might have been his reasons, they reflect nothing to redound to his liberality, nor credit for stimulating the young man onwards in his progress for usefulness to the public. Such conduct needs no other comment but that of reprehension.

EXTRAORDINARY GROWTH OF LOBELIA MULTIFLORA SPLENDENS.

BY MR. GEORGE HARDING, OF DUNHAM-MASSEY, ALTRINCHAM, CHESHIRE.

This year the superior growth of this beautiful bedding plant in the gardens of the Right Hon. the Earl of Stamford and Warrington, at Dunham-Massey, has far surpassed expectation, and gained from many great admiration, which has induced me to note down the particulars for your monthly periodical.

In the beginning of June a bed of this Lobelia was planted in a compost of *loam* and *peat*, in equal parts. The plants were nothing extra then; but now (*September* 20) they stand *five feet two inches high*, flowering two feet eight inches up the stem, and are extraordinarily beautiful; all in one complete mass of the richest scarlet.

I cannot help mentioning the remarks made on them recently by two persons who were passing by. One said, "*Oh, how beautiful is this bed here*" (meaning the Lobelias). "Yes," said the other, "it is; the plants are like as if they were on fire, with one exception, and that is, there being no smoke." Well, thought I, this is a curious idea, but a good resemblance. I may remark that plants have also pushed *numerous side shoots*, which promise to bloom, in due time, very well.

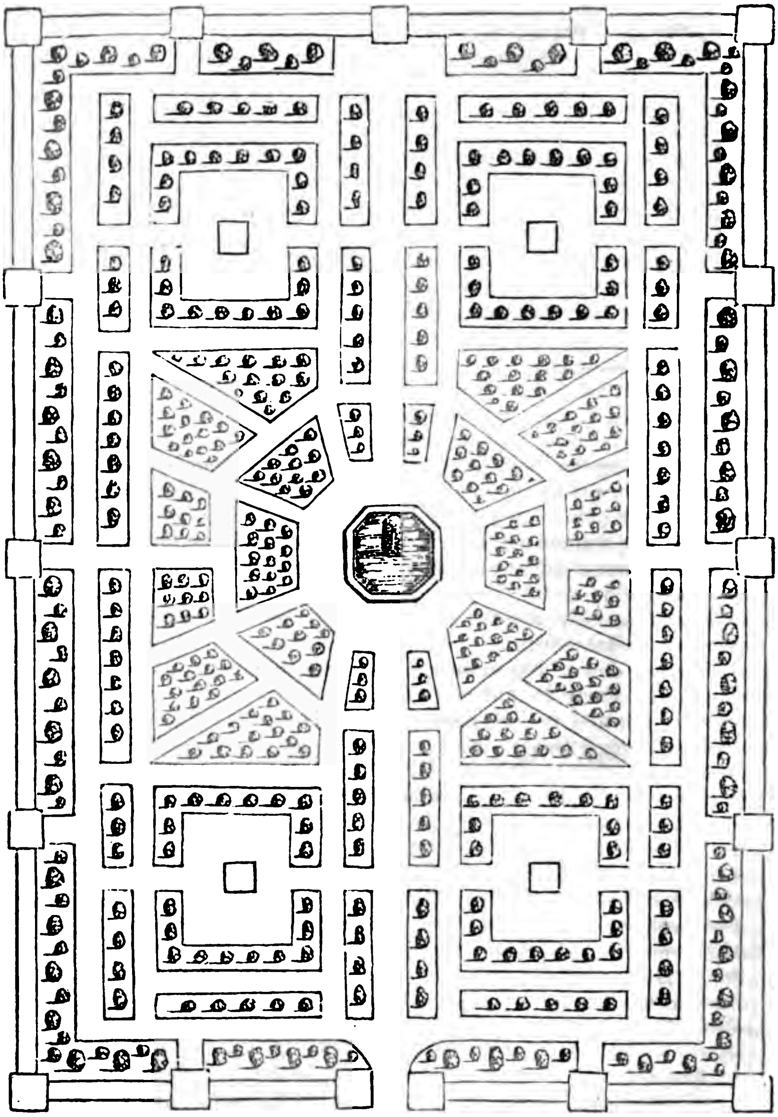
TREATMENT OF IMPATIENS JERDONII.

BY MR. THOMAS SHEPHERD, GARDENER AT BARNES HALL, NEAR MANCHESTER.

THIS beautiful new plant is a native of India, but I have treated it as a *greenhouse plant*, and find it succeeds most admirably. The following is the course of treatment I pursued:—In February, 1854, I purchased two young plants at Messrs. Veitch's, and immediately repotted them in a compost of equal parts of good turfy loam (well broken), sandy peat, and one year old cow-dung, then in a dry state, with a sprinkling of bits of charcoal, and placed them at the warmest end of the greenhouse, giving water sparingly till they began to push afresh; this they soon did. I then gave an increase accordingly. Early in May I repotted them into larger pots (twenty-fours), keeping them in the same situation. Early in June they began to bloom, and continued to do so till November. I then gradually decreased the water, so that in winter the soil was only just moist enough to preserve the plants from *shrivelling;* and they were placed in the cool but dry end of the greenhouse, where they were just preserved from frost. Early in February last I carefully took away the old compost, repotted in lesser-sized pots, placed them at the warmer part of the house (where the hot-water pipes enter), and then treated them as in the previous year. They began to bloom in June, and are now (September 15) in great beauty; the fine trusses of the brilliant scarlet and yellow blossoms being very ornamental. It is easy of cultivation, readily propagated, and worth a place in every greenhouse. If there be the convenience of a hotbed frame, of gentle heat, at work in spring, the plants might be placed therein for a few weeks to start them, then be removed into the greenhouse. I find the plant blooms well in a dwelling-room window, placing it there when it is nearly beginning to bloom. I think it might be grown quite successfully solely in a dwelling-room, at all its stages. It is well worth trying.

DESIGN FOR A FLOWER GARDEN.

BY T. RUTGER, ESQ.



THE accompanying design, strictly geometrical in its construction, is supposed to be surrounded with a dwarf wall, coped with Portland stone, whereon places are indicated for vases, or other embellishments which may be thought appropriate. The recess at the farther end is intended for a stone summer house, and the pond in the centre for a fountain with gold and silver fish. In the centre of the four quadrangular compartments dwarf pedestals may be erected, surmounted with vases, statuettes, or any other ornamental embellishments, such as taste or fancy may direct. If box edgings are adopted, they should be kept dwarf or neatly clipped.

Modern flower gardens, geometrically laid out in straight lines, are now, I believe, not so frequently to be seen as they were formerly, excepting perhaps on a large scale, where straight lines are in accordance with the *structures*, to which they may be considered as appendages; nevertheless, it may not be amiss to introduce a design of the kind occasionally in the *Cabinet*, by way of variety.

GENERIC DISTINCTIONS IN PLANTS.

BY A BOTANIST.

NOTICING that a correspondent asks for information on what generic and specific distinctions of plants are founded, I send the following particulars on the subject. The GENERIC DISTINCTIONS of plants, according to the Linnæan or Sexual System, are regulated by the fructification. The parts known to early botanists were few, and might be well thought insufficient for distinguishing the various productions of nature. They therefore had recourse to the habit of plants, and other circumstances, for substitutes, and by this means a greater number of genera were established, which the new system is forced to reject. The *fructification* being admitted as the only *sure foundation* of the generic distinctions, all vegetables that agree in their parts of fructification are to be put together under *one genus*, and all such as differ in those parts are to be divided. The characteristic part of each genus is to be fixed from the number, figure, proportion, and situation of all the parts; but as there are few genera wherein all the parts are constant in every one of the species, recourse must be had to some one single circumstance that is constant, and make it the essential character. This in most genera may be found. The distinguishing part of *Alyssum* lies in the denticles (toothed) of the stamina; in *Bignonia*, a mutilate stamen; in *Ranunculus*, it is the nectary, which is a pore in the claws of its petals; in *Hydrophyllum*, by the same, though a closed chink in the laciniæ of the corolla; in *Helleborus*, by its being tubulose; in *Pancratium*, the stamens are inserted into the nectarium; in *Hyoscyamus*, there is a covering to the capsules; in *Reseda*, a lateral nectarium, but varies in its corolla and pistillum. The *Campanula* has a quinquevalved nectarium, but it is inconstant in its corolla and capsule; and, lastly, the *Iris* has a stigma of singular construction, but varies in the beard of its corolla. There is, however, one part of fructification that can be relied on as a constant characteristic mark for all genera, it being found that the part which is constant in some genera will be inconstant in others. Thus in *Carica*, the flowers of the male part are monopetalous, and those of the female pentapetalous; in *Myrica*, some species have naked seeds, others berries; in *Fraxinus*, some have a naked flower, and others a corolla; in *Geranium*, some have a regular corolla, others irregular; in *Linum*, some are pentapetalous, others tetrapetalous; in *Aconitum*, some are tricapsular, others quinquecapsular; and in *Trifolium*, some are monopetalous, others polypetalous, some monospermous, others polyspermous. This inconstancy of particular parts of many genera has been another source of error in the earlier botanists, who have parted many plants from their congeners on this account. When the characteristic mark of any genus is wanting, in any particular species, we should proceed with caution, lest we confound genera that should be distinguished; and when this mark of any genus is observable in some species of another genus next of kin to it, a like caution is again necessary, lest we should multiply the genera, by parting species that should stand together. Thus we find, in the *Sedum* and *Cotyledon*, the nectary adheres to the base of the pistillum; in *Epilobium* and *Œnothera*, the calyx is tubulose; and in *Mespilus* and *Cratægus*, the structure of the flower is alike. The more constant any part of the fructification is found, throughout the several species of any one genus, the more it may be relied on with certainty as a characteristic mark of that genus. Thus, the nectarium in *Hypecoum* is constant, but not the siliqua; the *Convallaria* is constant in its spotted berry, but not in its corolla; the *Lobelia* in its corolla, but not in its fruit; and the *Cassia* in its corolla, but not in its siliqua. In some genera, one part of the fructification is found to be most constant, and in others another, but there is no part that is not subject to variation; thus we find the percarpium variable in the genera of *Impatiens* and *Primula*, and the seeds in *Ranunculus* and *Alisma*.

If the flowers agree, while the fruits differ, the genus must not be parted. Thus, in the extensive genera of *Hedysarum*, *Cassia*, *Acacia*, etc., a great number of species have been ranged under the same genus, on account of the conformity in their flowers, though there is variation in the fruit. That the figures of the flowers are more certain than that of the fruit, appears from many examples, as from *Campanula*, etc.; but there is a great variation sometimes in the proportion of the parts of that figure. The number of the parts is also liable to variation, and is sometimes found to vary even upon the same plant, particularly in Garden Rue (*Ruta graveolens*), *Adoxa*, *Tetragonia*, etc.; in the flowers of all which the number of the parts vary from five to four. In these doubtful cases, the natural number must be collected from the primary flower; but in the variation of the number of the parts there is a proportionable affinity worthy of remark. In flowers, the stamina usually vary from ten to eight, and from five to four; the calyx and corolla from five to four, and the whole flower from four to three; and the fruit usually varies from five to three, and five to four. The situation of the parts is the most constant, very rarely varying in the same genus.

The regularity of the petals is not so much to be depended upon; for we see in *Geranium*, the European species have regular corollas, but the African have irregular ones. The nectarium has been made of the greatest consequence in forming genera; this part had not even a name before Linnæus distinguished it; it is a very decisive and sure mark, and can be relied on.

The stamina and calyx being less subject to luxuriancy, are far more certain than the petals. The corolla varies as to its figure in many genera, and also in number; being, in *Ranunculus* and *Helleborus*, pentapetalous in some, and polypetalous in others; in *Statice*, pentapetalous and monopetalous; in *Fumaria*, dipetalous and tetrapetalous, and the number is also variable in the same species, as in *Carica* and *Jatropha*.

The structure of the pericarpium was formerly thought to be of great consequence in determining the genera, but there are examples that demonstrate the contrary. There are a great many genera that have been established on distinctions in the pericarpium, which are now rejected.

The characters of luxuriant flowers, whether eunuchs (deficient of stamens) or mutilate (deficient of calyx and corolla), cannot be allowed any place in determining the genera; for in full flowers no number of petals can be assigned, and the stamina are generally wanting, the number of which makes a part in the generic character; and in mutilate flowers, the corolla would be excluded from the description, contrary to the nature of the other species of the genus. But as the calyx in full flowers is scarcely ever altered, it may detect the genus, and the lowest series of petals in polypetalous corolla remaining the same, in respect to number, the genus may be often known by that character, as in *Rosa*, *Nigella*, and *Papaver*. (*Specific distinctions* will be given in the next number.)

WINTER TREATMENT AND PROPAGATION OF EPACRISES.

BY MR. WILLIAM THOMPSON, FLOWER GARDENER AT HEYTON HOUSE GARDENS, MIDDLESEX.

BY September the *Epacrises* will have completed *their growth* and *formed their flower-buds*. See, therefore, that they are in a proper condition for wintering, their pots clean, and the drainage complete, for to have that perfect is of more consequence during winter than at any other season; if it is imperfect, the water will lodge in the soil and turn it sour; the young roots will then perish, and the plant will soon show the ill effects of such conditions. This fact cannot be too strongly pressed upon the attention of the young cultivator. Should any worm casts appear upon the surface of the soil, means must be taken to get rid of them; if only one or two pots are infected, the most certain remedy is carefully to turn the ball out of the pot, and if the worms are outside, gently to remove them, without disturbing the roots; but if they are imbedded in the soil, they will be more difficult to come at. If the ball be gently struck with the hand, they will creep out of their hiding-places, and may be destroyed. Should these means fail, let the plants become moderately dry, and then give a good watering with lime-water; this will effectually displace them. The green fly sometimes prevails in the early part of winter on the young shoots; they are easily got rid of by smoking with tobacco. The application of water during winter is necessary, but only in moderate quantities, merely just sufficient to keep the soil somewhat moist, care being taken that the ball is moistened to the centre. All the artificial heat that is needed for the *Epacris*, is just enough to keep out frost. If the plants, or part of them, are kept in cold pits, they should be securely covered up every night when severe frost prevails; in very severe, long-continued frost, it may be necessary to keep them closely covered up even during the day. They have been so covered up for a week together without injury; but on all favourable occasions uncover them, and give them fresh air to dry up damps, and keep the plants fresh and healthy. Air must also be given plentifully to the greenhouse, both to keep down the temperature and sweeten the atmosphere. Once or twice during the winter let the surface of the soil be stirred, and all mosses and lichens removed, as well as weeds. Towards the spring, when the flower-buds are beginning to push, a top-dressing of fresh mould will be acceptable and useful.

In order to perpetuate choice varieties already known, the only way is to strike them from cuttings; they are by no means difficult to propagate in this manner, though certainly not so easy as a *Geranium* or *Chrysanthemum*. The materials necessary are some good sandy peat, some fine white silver sand, and two or three bell-glasses, together with a rather warmer house to place the cuttings in than the greenhouse. The best time is when the plants have plenty of young shoots upon them, which generally happens about the month of May. The best cuttings are such as are growing on the side shoots, because these are not so gross and full of sap as the leading branches. The shoots being in a fit state to take off cuttings, select some pots of such a size as will allow the bell-glass just to fit within them; fill the lower parts of the pots with broken potsherds for drainage, lay upon the drainage a thin layer of the rougher parts of the peat, then fill up with roughly sifted peat to within an inch of the top, and fill the remainder with fine silver sand; give a gentle watering from a fine-rosed watering-pot, to settle the sand, then prepare the cuttings; take them off about one and a quarter inch long, trim off the lower leaves carefully with a very sharp knife, without injuring the bark; set the bell-glass upon the sand to make a mark, and within that mark, put in the cuttings, in neat rows across the pot; keep each variety by itself. Proceed till the number desired to be multiplied is all planted, then give a second gentle watering, to settle the sand close to the cuttings; let them stand half an hour in the shade to dry the wet off the leaves; then place the bell-glasses upon them, and set them in a gentle heat, shading them every day when the sun shines. Also, let the glasses be wiped dry every morning, for a month, and by that time the cuttings will begin to grow. To check them from drawing up weakly, uncover them for an hour or two every morning; and when they are rooted, remove them into a cooler house for three or four weeks, leaving the glasses off in dull weather, and shading them from hot sunshine; by that time they will be fit to pot off. If there is a considerable number, and room is scarce, they may be put into three-inch pots, four in a pot, and allowed to remain in them till the following spring, When they are potted off out of the cutting-pot, place them in a cold frame close to the glass, and shade till they are fairly established, to cause them to form branches close to the pots; snip off the tops as soon as they begin to grow afresh; and when they have filled the small pots with roots, repot them, and afterwards treat them in the same manner as the established plant.

ON HEATING A SMALL GREENHOUSE, ETC.

BY J. F. W., OF READING.

I HAVE perused with much interest a paper in last month's *Cabinet*, on heating small greenhouses with gas. In common with many others (particularly ladies), I have a small greenhouse, managed by myself, female servant, and lad. I have tried a small stove of Deane's (for which I gave two guineas), warranted to burn twelve or fourteen hours without attention; this I found a great deception, as it could not be kept in half the time, and being of single iron, or, at any rate, no air passing between the two plates of iron (if two there were), caused it to get red hot, which was both bad for the plants, and risked setting the place on fire. So I discarded this, and lost my two guineas, only wishing my experience could prevent others believing the false advertisements so constantly put forth. Next I tried a gas stove set forth as requiring no flue. The coke stoves of this maker are admirable for producing heat; but the gas not so good, as I was quite unable to keep out the frost last winter, and lost all my plants. I also found that the alteration of pressure, after I had gone to bed, just put out the light, but allowed the gas still to pass, so that I had to pay for what did me an absolute mischief, and was certainly dangerous, besides getting the cold in the house.

Now if your correspondent would send plans of his method, in time for the November or December Magazine, it would, no doubt, be greatly beneficial, adding also the size of pipes and boiler, the expense per foot of pipes, the expense of boiler, exactly the thickness of it, and of what it is composed, with the price and the size of jets, as well as the probable *cost of gas*, and especially the method of proceeding in management. It is scarcely to be credited the ignorance of many in this country; they go on in the old way, and it is years before they can be got to understand anything new. I have forgotten to state that I had almost determined to get rid of the gas altogether, having found that in the very severe weather I could not get any. Some nights, our street lamps and those in the shops would not burn; and one night the churches and chapels supplied by one of our gas companies were in total darkness; so that certainty must be ensured to have it supplied on all occasions, to preserve the plants from injury. Trusting soon to be put into a better way of management, I respectfully solicit attention to the subject.

REMARKS ON CLIMBING PLANTS.

BY THOMAS RUTGER, ESQ.

In the November number for 1853, at page 257, there is an article upon "plants for pillar decoration," recommending the *Heliotrope* for adorning pillars, wires, etc., in a cool conservatory, and the description there given of one running up a pillar, to the height of fourteen feet, is calculated to invite others to try their skill in producing the like effect. The plant thus finely grown is to be admired, not only for its "pendent branches, with clusters of flowers hanging gracefully from the extremities of each of them," but also for its rich perfume. After naming the *Salvia gesneriflora* and *Sollya linearis* as suitable for pillar decoration, the article concludes with "to be continued." As I should like to see the subject treated upon occasionally, I wish to draw the attention of some of your contributors to hardy climbers, as well as to the tender kinds. Some years ago, I was much struck with the sight of some fine *pillars of Roses*, which I saw in full bloom in Mr. Rivers's nursery, at Sawbridgeworth, and a splendid appearance they exhibited. I suppose his method may have been followed by many to the present day. There are, no doubt, many hardy climbers that might be trained in a similar manner, and among these I should like to draw the attention of your readers and contributors to the *Wisteria sinensis*. A well-trained pillar of this, at some twelve or fourteen feet in height, well furnished with its pendent racemes, would have a striking effect. I have seen it treated as a shrub, or rather trained as a dwarf pillar, to the height of four or five feet, and even in that state, when well adorned with its pendent flowers, has a beautiful effect. Specimens somewhat similar to those now adverted to, may be seen growing in Messrs. Whitley and Osborne's nursery, at Fulham.

OBSERVATIONS ON THE FUCHSIA.

BY AN ARDENT ADMIRER.

About forty years ago a plant of the old and well-known *Fuchsia coccinea* came into my possession, and then became a pet plant with me, and so continued till the production of some hybrids eclipsed it in colours and size.

The attention given to importing new species, and the intermixture productions raised in this country, have rendered the entire family one of the most interesting of what are termed floral plants. I was glad to see the remarks on hedges of them in the September number, which induced me to send the observations I now do.

Two years since I planted out in the open ground fifty kinds. I put them out in a raised border, a foot higher at the back than the walk in front, sloping gradually down to it, the soil being a sandy loam, on a dry substratum of broken stones. I had them placed in two rows, the first being plants grown as bushes, and the back row consisted of standards, each from three to four feet high. Many of these had been formed by grafting fine kinds upon the stocks of older ones, many of which I had possessed for years previously.

They united readily either in tongue or cleft grafting, or inarched, The border was in the pleasure-ground, had a south aspect, and a fine dense back of common laurel and yew, which formed an admirable shelter. The border contained roses, both dwarfs and dwarf standards, the same height as the Fuchsias. I planted them alternately along; and, when in bloom, they were a most interesting and beautiful sight, and continued to bloom from June to the end of October. At the latter period I took up all the standard Fuchsias, keeping some soil to the roots, and placed them, closely pressed together, in a shallow box, filling up between the balls of roots with good soil, and tying the tops (erect) together. I kept them through the winter, under the stage, in a dry greenhouse, and when the first effort to push in spring commenced, I replanted them out in their positions in the border. The bush Fuchsias I left in the border through winter, without cutting down the tops; for I had discovered that, if cut off before winter, the hollows of the stems became filled with water in winter: the frost operating, etc., caused the shoots to rot and die, and the plants are generally destroyed through it.

In November I covered to the extent of two feet around each bush, and amongst the shoots, with dry leaves to the depth of eight of ten inches, sprinkling them over, to secure them to the spot, with an inch of soil. This preserved every plant; and, for the last ten winters, the *F. Baxteri*, *elegans*, *virgata*, *globosa magnifica*, and others, have retained their entire shoots uninjured, and though the last winter's frosts were very severe, they pushed lateral shoots to the very tops of the previous year's wood. Early in the spring I cut off the dead tops. Nothing in the floral way could exceed the very interesting beauty of the whole, when in full bloom.

I planted a number in various sheltered places of the pleasure-ground, too; several where they were even shaded under trees; and they succeeded admirably, having the necessary attention of watering in extended dry weather. The flowers were more beautiful by being partially shaded from hot sun; and though it has been stated they like full intense sun upon them, I have not found it so; but, on the contrary, they bloom more beautiful when shaded for four or five hours during the middle of the day. This, too, applies to those grown in-doors; especially so with the light-coloured ones, they being apparently more delicate, and are much improved by shading, as stated above.

As Fuchsias can be procured in such numerous varieties of form, size, and colours, very cheap, and being so easy to keep afterwards, and increase by cuttings with the greatest facility, they deserve culture in every situation, whether in or out of doors. A friend of mine has a wire-fence hedge, six feet high, consisting of Fuchsias, which are neatly trained to it, and cover it entirely in summer, which has a most beautiful effect; a small part of it is arched over to an opposite trellis, and the flowers hanging beneath (overhead), have an interesting appearance.

THE NECESSITY OF A PROPER ARRANGEMENT IN PLANTING A SHRUBBERY.

BY A YORKSHIRE LANDSCAPE GARDENER.

I HAVE been highly gratified in seeing the very handsome designs of gardens, which have been supplied by Mr. Rutger each successive month, but especially pleased with the general design he gave us in the September number, for six acres extent. I hope we shall have others. My present intention, however, is to supply a few particulars suited to aid amateurs in the proper arrangement of planting shrubs, trees, etc., in close connection with the dwelling-house, a general neglect of which is to be regretted. It now being the best period for planting, I beg the following remarks may appear in the November number.

The shrubbery may be defined to be the link which connects the mansion and the lawn to the flower-garden, or to the other parts of a residence, and is most generally planted either for shelter or shade, although often as a screen to hide disagreeable objects, for which the plants which compose it are better suited than for forest or other trees. The shrubbery is often a matter of utility as well as of ornament, in which case it gives the highest satisfaction when formed for the purpose of shutting out the offices or the kitchen-garden from the view of the house; for sheltering the latter or the garden, or for connecting the house with the garden and the orchard, the shrubbery becomes useful and interesting.

Sometimes a shrubbery is formed merely for the purpose of growing rare shrubs, and for obtaining agreeable walks; in this case it is necessary to be at more pains, and to display a greater degree of taste in the laying of it out than in the formation of the useful shrubbery; in the former case, a tasteful arrangement of plants is a matter of less importance than the choice and disposition of kinds that will soonest afford shelter, and ultimately become thick screens.

In planting shrubberies for screens, to hide disagreeable objects, evergreens should form the principal mass, as affording a permanent blind, and giving a cheerful appearance even in winter. A few deciduous shrubs of the most showy sorts may, however, be with propriety added, which will give relief to the more sombre appearance of the evergreens, particularly while the former are in flower; but, from their nature of annually shedding their leaves, and consequently becoming thin in winter, they are not so well calculated for a permanent blind.

In the disposal of shrubs, the tallest should be planted farthest from the walk or front side, and the lower in stature in front, but if an immediate effect be desired, it is better to elevate the ground than to plant trees of too great an age; it is also a matter of importance that they may be planted thickly, as it is an easy task to thin them out when required. Little taste has generally been displayed in the formation of shrubberies as to the production of picturesque beauty; they are planted too generally in the form of sloping banks, without the least natural beauty whatever, although in this way they may answer the purpose of blinding out disagreeable objects of little merit, when seen even from their best side.

Great attention should be paid, in their planting, to give them a somewhat *natural appearance*, and not that of a surface as regular as if they were clipped with the garden shears. Straight lines should also be avoided as much as possible, and the margin of the shrubbery should be *broken* with deep indentures or sinuosities, and these should be neatly turfed over and kept mown. The walks which lead through this department should not be to any great distance in a straight line, if it can be avoided, neither should they be too much twisted. There is something in a fine gentle sweep or curve so pleasing in a road or walk, that few are insensible of its beauty. The breadth of the walks should be regulated according to the length and scale of the place, as too narrow walks for principal ones have never a good effect; they should scarcely, under any circumstances, be less than five feet wide, and, unless for terrace walks of great length, should not be more than eight; if the greater breadth, they assume the appearance of a carriage-drive, and if narrower, they dwindle in appearance to a mere footpath.

By *combining* the more distant parts of the grounds with the lawn and house by means of shrubberies, which may be done, if executed with judgment. Space does not always give the idea of grandeur, for a limited sphere is often better adapted to the display of ornament and beauty. By good management a small strip of ground may be varied, by taking advantage of the ground (if any); or, if it be a level and monotonous spot, art can readily step forward and assist by raising banks, sinking the walks, and planting shrubs in thick masses, chiefly evergreen species, and conducting the walks in the most circuitous manner, so as not to intersect each other but as little as possible; however, care must be taken to give sufficient breadth of walk, and also a margin of grass on the sides, of unequal breadths, which will naturally assist in adding to the picturesque appearance of the whole. This may also be aided by forming the banks to be planted of unequal heights, which banks, in small places, need not occupy much surface at their base, so as to admit of as great a breadth of grass margin between them and the walks as possible; in some parts narrow, where it is deemed necessary, either for variety or for the more completely concealing objects which should not be seen; at others broad, and disappearing, as it were, in natural glades, in the distance. This margin of grass, where of sufficient breadth, should be planted with the finer species of ornamental trees and flowering shrubs, singly or in groups of three or five together, which would not be seen to sufficient advantage if planted generally amongst the shrubs.

Some attention to botanical arrangement might be paid in the distribution of the shrubs and ornamental trees, but this must not be carried to the extent likely to infringe upon picturesque beauty; however, such families as Pinus, Juniperus, Buxus, Laurus, etc., may be grouped with good effect, and, if judiciously done, will give a bolder effect to the whole than if they were planted promiscuously. Fine specimens of larger growing kinds should be so placed as to give effect and relief to the thicker masses of more humble growth. In the background may be placed a few fruit-bearing trees, which will display their beauties in spring with their blossoms, and in autumn with their fruit; in such situations also should be planted the stronger growing species of *Cratægus*, *Prunus*, etc.

On leaving the mansion, the walks should be conducted through the lawn in a graceful and natural manner to the shrubbery, and should be as much hidden from the principal windows as possible; they should then be continued through the shrubbery, the most circuitous walks leading to interesting objects, so as to relieve the mind and remove the idea that they lead to nothing. Fine specimens of trees, ruins, either natural or artificial water, distant views of villages, churches, woods, cottages, or the like, will always be pleasing. Shorter walks should also be contrived on which to return (as most objects lose their effect when seen over and over), as well as for a more convenient mode of reaching the more distant parts of the grounds. Neat resting-places should be placed in different parts, choosing the situation of some in shaded groves, others upon elevated spots commanding the finest views of the grounds or surrounding country. Much taste may be displayed in the formation of such seats, from the polished temple of Flora, Venus, etc., to the rude roots of trees and misshapen fragments of rocks or rude stone. Arbours of living trees of flexible habits, such as Mountain Ash, Willow, etc., may be planted and formed in bowers, and covered over with creeping plants, such as Clematis, Ivy, Honeysuckle, etc. Moss houses of various construction, root-houses, Russian, Swedish, Lapland, Scotch, and Swiss cottages should be disposed of in situations peculiarly adapted for them. Sometimes situations are naturally to be found adapted for the one or the other; in such cases the house should be chosen to suit the situation, and this will always be found to have the happiest effect. Where the situation has to be formed for either, much judgment and taste are required in the arrangement; this is not sufficiently attended to. Thus a Russian cottage, composed of oak timber-trees, and the adjacent ground planted with laurel and other polished shrubs, natives of southern latitudes, and close-shaven grass lawns, is as preposterous as the chaste Grecian temple in a rocky dingle. The ground should be chosen or arranged so as to persuade the observer that he is really in Russia, and the house should be composed of the same timber-trees used in the formation of cottages in that country, and be of the same form and size. The internal construction and furniture should also come as near to reality as possible. Hermitages and caves are also interesting, when proper situations are chosen; in these should be kept a small collection of books calculated for private study, and the furniture of this sequestered retreat should be exactly of that simple and useful nature as would be suitable to a recluse.

REMARKS ON THE MARVEL OF PERU.

BY MR. JAMES KING, FLOWER GARDENER, RAYSTON PARK, YORKSHIRE.

I HAVE been surprised that no correspondent has hitherto made mention of these charming flowering plants in your Magazine. My employers are great admirers of them, and in the flower gardens and borders of the grounds we have a considerable number. I am therefore desirous to bring them to the notice of the readers hereof, as they are worthy a place in every garden, and if grown in pots or vases, they are very ornamental for the greenhouse or terrace. They are particularly adapted for situations near the dwelling, or public gardens that are frequented in the evening, or entrance hall to a mansion, as the flowers are awake, gay, and fragrant when most other blossoms sleep, and when the light of lamps, gas, etc., is thrown on their numerous and richly dyed corollas their appearance becomes enchanting, and highly deserving of the title which our FRATERNAL ALLIES in France give it, viz., *Belle de Nuit*, "Beauty of the Night."

In emblematical language, this flower is made the symbol of timidity.

The generic name *Mirabilis*, WONDERFUL, was given to this plant from the wonderful diversity of colours there are in the flowers. I have the following, viz., scarlet, purple, white, rose, yellow, red, violet, sulphur, white striped with violet, yellow striped with crimson, and yellow with purple, as well as the sweet-scented white, and some beautiful hybrids from it impregnated with the other species. In some instances, I have seen several of these colours in the flowers of a single plant.

This beautiful plant was originally brought into Spain from Peru, where it was called *Hachal*, and for some time it retained the name of *Hachal Indi*. Afterwards it was named *Mirabilia Peruviana*, by Carolus Clusius, nearly three hundred years ago. From the form of the flowers being somewhat similar to those of the Jasmine, several old writers named it *Jasminum Mexicanum*.

It was first cultivated in England in the time of Gerard, who informs us, in his work of 1597, that he had planted it many years in his garden, and that he had obtained ripe seed out-doors. He writes at considerable length on the beauty of the flowers, and says the plant ought to be called "rather the Marvel of the *World*, than of *Peru* alone"

Jacobus Antonius Cortusus, a professor of botany at Padua, who died in the year 1593, first discovered the cathartic qualities of the root of this plant, and it was shortly afterwards supposed [a mistake, ED.] to be the true Gelorpo, or Jalap of the shops, and the plant was accordingly named *Mirabilis Jalapa*. The Japanese ladies prepare a *white* paint for their faces, from the meal of the seeds. The plant is common in all the West India Islands, where it is called Four o'clock Flower, from the flowers opening at that time of the day. But even there, as in England, when the sun is obscured, and the weather moderately cool, these timid flowers remain open during the entire day.

Seed should be sown in a pot, placed in gentle heat, in February, and, when the plants are strong enough, be potted singly into sixty-sized pots; early in May, repot those intended to be grown in pots, and those for the open ground plant out with balls entire. Or, in the warmer parts of this country, sow seed in the open ground in March, and the plants will bloom in perfection, after the earlier ones are over their prime. These spring-sown plants will form plants two feet, or rather more, high, and as much across. After the bloom is over, the roots of those in the open ground are taken up, dried a little, and preserved, similar to Dahlia roots, and in spring planted out to bloom again. These plants will become much larger than in the previous year. We have many that are four feet high, quite bushy, and four feet across, which bloom in vast profusion, from June to November. We have roots that have thus been annually taken up and replanted for ten successive years. In a south-aspected border, in front of a high brick wall, I have allowed a number of the roots to remain in the ground wholly for the last four years; protecting the crown by means of six inches thick of dry leaves, and a large pot, or tile, laid over, to keep the root dry. The plants bloom as vigorously and profusely as those which have been taken up and replanted. I enrich the ground every winter, in the same way as done for Dahlias, and due attention is paid to a liberal supply of water. Any labour bestowed is most amply repaid by the beauty of several months' flowering.

NOTES FROM KEW.

BY MR. W. S. PRESTOE.

Gesneria Douglasii.—This is the most distinct species that I am acquainted with, in regard to habits, and it is really a beautiful one. About six inches from the surface of the soil there is a whorl of three leaves, and immediately above them, alternate, there are three more, so close as nearly to form a single whorl; about six inches above them there is another whorl of three leaves, but these are much smaller than the lower ones. The corolla is funnel-shaped; the outside of it, at the base, is of a deep flesh colour, and decreasing in colour up to the extremity, till it is of a dull yellow, spotted with reddish-brown; the inside is yellow, beautifully barred with crimson. Its flowers are so plentiful that they compose a large head. It merits a place in every stove.

Gesneria flavescens.—Leaves very large and very beautiful. The flowers are produced in spikes, something similar to *G. zebrina;* they are of a bright flesh colour, about three inches long, and produced very freely. It is an excellent addition to this beautiful genus.

Gesneria Merkii.—Leaves heart-shaped. Flowers very large, of a beautiful bright scarlet. It is of dwarf habit, and merits a place in every collection.

Anoxeatum asperulum.—A hard-wooded, evergreen, greenhouse plant, growing from one to three feet high. Leaves lance-shaped; the upper side dark green, the under of a grey appearance. The plant is covered with Arachnoideæ (hairs like spider-webs). The flowers are in dense heads, at the extremities of the shoots, about two inches in diameter; before they are fully expanded they are of a reddish-purple, but when fully open, a flesh colour, changing, as age increases, to a dirty white. The plant we possess has wintered in a cold pit, and flowered very freely.

COLUMNEA SCHIEDEANA.—A soft-wooded, evergreen, stove plant, growing from one to two feet high. The flowers are produced very freely; tube about two inches long (very much in shape of *Gesneria splendens*), yellow, with beautiful bright red stripes. It blooms in profusion. There is one source of regret with this plant, viz., its foliage is set so very thick all over, that its curious and beautiful flowers are very much hidden from view.

DIPLADENIA ATROPURPUREA.—A stove evergreen climber. Flowers funnel-shaped, the extremity divided and spreading very widely; of a deep crimson colour, nearly black, and very sweet scented. It merits a place in every stove.

ACHIMENES GIGANTEA.—It is a novelty beyond comparison, much resembling *A. picta*, but is *very much* larger, and the colours far brighter. The foliage is most elegant, beautifully netted with silver on green. The plant we possess is about two and a half feet high, and in one mass of flowers. It merits a place in every collection.

DRYMONIA VILLOSA.—A soft-wooded stove plant, growing about two feet high. The flowers are funnel-shaped, divided at the extremity into five segments, spreading quite flat, about one and a half inch across; white, with the throat and tube striped with blue. It blooms very freely, and is well worth possessing.

NOTES ON NEW AND SELECT PLANTS.

138. **CAMPANULA PRIMULÆFLORA**, (*Primrose-leaved*). Nat. Ord. *Campanulaceæ*.—*Decandolle*, in his "Prodromus," issued in 1839, gives a description of 182 species of Campanulas; and *Walpers*, in his recently published "Repertorium," describes 55 others, making a total of 237 species in this charming family of flower-garden plants. The one under notice is a native of Portugal, where it grows in moist rocks and shady situations. It is a hardy, perennial, herbaceous plant, each floral stem growing two to three feet high. The spike of flowers is long, and each blossom is nearly two inches across; the tubular portion is a primrose colour, the throat a pale slate colour, and the spreading five-parted limb (front of flower) is a pretty lilac-purple. (*Fig. in Bot. Mag.* 4879.)

139. **CLERODENDRON FŒTIDUM.** Nat. Ord. *Verbenaceæ*. Syn. *C. Bungei*.—A native of Northern China; first discovered by Bunge, and subsequently by Mr. Fortune, who introduced it into England. It has been treated as a *greenhouse* plant, where it flourishes admirably. It forms a small bushy shrub; leaves heart-shaped, about six inches long. The flowers are produced in large, terminal, close, half-globular-shaped, corymbous heads. Tube of each blossom an inch long, and terminal; five-parted limb three parts of an inch across. A very handsome species. Messrs. Masters, nurserymen, at Canterbury,

have had a plant which stood out, without injury, in the open air for six winters, till the winter of 1853-1854; but in May following, a sucker was protruded a foot from the ground, which attained a height of nearly four feet before autumn. It flowers in August, and is more fragrant than fœtid. (*Fig. in Bot. Mag.* 4880.)

140. GILIA DIANTHOIDES (*Pink-like Gilia*). Nat. Ord. *Polemoniaceæ.*—Mr. Douglas discovered this lovely *annual* in California, but it has only recently been introduced into our gardens by Messrs. Veitch, who received it from Mr. William Lobb. It forms a closely branching spreading plant, growing from three to six inches high, and blooms in vast profusion. Each blossom, which is in *form* like those of the *Gilia tricolor*, but larger, being three parts of an inch across, of a delicate lilac colour; it is divided into five lobes, and at the bottom of each there is a dark blood-coloured spot; the five spots form a striking ring round the orange-coloured centre of the blossom. It continues in profuse bloom during the entire summer, if duly supplied with moisture. It is a charming bedding plant for a small bed, or for an edging, vase, etc. (*Fig. in Bot. Mag.* 4876.)

141. ODONTOGLOSSUM MACULATUM. Nat. Ord. *Orchidaceæ.*—In the orchideous stove at Kew it bears a long pendent spike of handsome flowers. Petals and sepals narrow, of a deep golden yellow, spotted and barred with rich brown; lip large, flat, heart-shaped; an inch long; white, with pale red blotches. Each flower is four inches across; very interesting and handsome. (*Fig. in Bot. Mag.* 4878.)

142. RHODODENDRON KEYSII. Nat. Ord. *Ericaceæ.*—This singularly remarkable Rhododendron is one of several new species which were discovered by F. J. Booth, Esq., in the mountains of Assam and Bootan. It was found at an elevation of nine to ten thousand feet above the sea level, on the summit and northern ridges of the Lablang, forming low thickets among Gaultherias and stunted yews, amid snows two and three feet deep. It forms a neat shrub, two to three feet high. Leaves three to four inches long, and an inch broad; they are somewhat fragrant, from the resinous scales with which they are clothed underneath. The flowers are produced in short axillary racemes, coming out of the *old wood;* each of these racemous branchlets bears five or six flowers, and the whole encircle (in a whorl) the main branch. Each blossom is cylindrical, *tube-shaped;* an inch long, and a quarter of an inch through; of a pale brick-red colour, tipped with yellow. The cluster of flowers therefore does not terminate the branch, but is crowned with the shoot of the season. It proves to be quite hardy, blooming in July and August. Messrs. Henderson, of Wellington Nursery, purchased all the stock that Mr. Booth discovered and introduced into England. (*Fig. in Bot. Mag.* 4875.)

143. CUPHEA EMINENS.—Most of our readers know and admire the lovely *C. platycentra* and *C. strigulosa.* The one we now notice is far superior to these, either for the greenhouse or bedding purposes. It is a neat-growing plant, and blooms in vast profusion. Each blossom is tube-shaped, one and a half inch long; the bottom por-

tion is yellow, next a rich carmine-red, then a golden yellow tip. Very handsome.

144. **GENETYLLIS PULCHRA.**—A neat *bushy* plant, very twiggy. The flowers are produced in terminal branchy spikes, each having from seven to ten blossoms. Each flower is tube-shaped; one inch long; a rich scarlet-red, tipped with white. It blooms very profusely. Merits a place in every greenhouse.

145. **ACHIMENES ROEZLII.**—This very superb hybrid plant has much the appearance of *Gesneria zebrina.* The leaves are large, dark green, with zebra-like stripes of velvet on the upper side, and the under side of several shades of colours; remarkably handsome. The flowers are produced in a fine erect branching thyrse, and of a similar *shape and size* to those of the much-admired *Gloxinia maculata;* of a beautiful rose colour, shaded with lilac. The plant continues in bloom for many months. M. Van Houtte possesses the stock of it, and offers it for sale at 10*s*. 6*d*. each. He states "it is the *most beautiful* hybrid plant" in the whole of his immense collection.

146. **BEGONIA ZEYLANICA.**—In our last year's volume we described the great beauty of the foliage of *B. Thwaitesii,* and the present species is an equal rival to that; they are beautifully speckled with metallic silvery white spots. In M. Van Houtte's collection.

147. **MARANTA WARSCEWICZII.**—The leaves are large, and very beautiful, with rich *zebra-like* stripes. A charming stove plant. In M. Van Houtte's collection.

148. **MUSA ZEBRINA.**—The foliage is very large, zebra-like striped, with light and velvet green. A fine stove plant. In M. Van Houtte's collection.

149. **GLOXINIA ERECTA** (Fyfiana form) **CÆRULEA.**—Flowers a deep blue, with the throat of a deep velvety violet colour; very distinct and pretty.

150. **G. ERECTA LINEATA.**—Outside it is white tinged with pink, and the inside a pure white, regularly striped with bright rose, and very pretty.

151. **G. ERECTA MARMOREA.**—A superb variety. The limb (spreading portion of the face of the flower) is broad, and of good substance. The flower is of a pearl-white, beautifully marbled with rose.

152. **G. ERECTA GRANDIS.**—Flower large, good substance, and fine shape, white, with the throat a rich amaranth colour; a very fine variety.

153. **AZALEA, EULALIE VAN GEERT.**—This very valuable acquisition to the greenhouse Azaleas is a seedling raised in the nursery of M. Auguste Van Geert, at Gand. It is a very free-growing plant, and blooms profusely. The flowers are large, each blossom three and a half inches across, of excellent form and substance, a beautiful blush-white, with the three upper segments of the corolla *numerously* spotted with rosy scarlet, and are very handsome. Its fine heads of flowers are very neat and ornamental. It merits a place in every

greenhouse. Plants may be obtained at the principal nurseries in England early next spring. (*Fig. in Verschaffelt's L'Illustration Horticole*, 65.)

154. Rhododendron, Madame Wagner.—It is a seedling from *R. caucasicum*, impregnated by some other unknown one, and quite hardy. The flowers are produced in large, somewhat conical heads of twenty or more blossoms, each flower being two and a half inches across, campanulate, white ground, with a broad margin of beautiful rosy scarlet. It is exceedingly handsome, and deserving a place in every collection. It may be had at the London nurseries next spring. (*Fig. in L'Illustr. Horticole*, 66.)

155. Dianthus alba nigricans.—It is a seedling, obtained between *D. caryophyllus* and *D. plumarius*, viz. Carnation and Feathery Pink. Each flower is large, a full double, near three inches across. The ground is nearly black, tinged with violet, and has a pure white fringed edging to each petal. It is exceedingly pretty, and merits a place in every garden. It is, too, a charming plant for pot cultivation and for forcing early. (*Fig. in L'Illustr. Horticole*, 67.)

156. Begonia Verschaffeltiana.—A beautiful hybrid, raised by M. Regel, in Belgium, between *B. caroliniæfolia* and *B. manicata*. The plant is very free growing, and blooms in vast profusion. The flowers are produced in *large panicles*, of a lively rosy scarlet, changing to pink. Each blossom is an inch across, very interesting, elegant, and ornamental. It is a charming variety, and ought to be in every collection of these valuable autumn and winter blooming plants.

MISCELLANEOUS.

Pyramidal Fuchsias.—As decidedly the best collection of Fuchsias shown at Sydenham on July 2nd consisted wholly of plants of this shape, I give you my plan of growing them, and I hope that Mr. Bousie, the exhibitor of the group in question, will favour your readers with his mode of cultivation next week. I put a few old plants in a warm pit or vinery, where the temperature ranges about 55°, about the end of January or beginning of February, in order that they may have pushed out plenty of young wood by the middle of March. I then take off what cuttings I can get from each sort, preferring the shortest-jointed wood. First prepare as many four-inch pots as you may require, taking care that they are well drained, and the compost of a sharp open nature—coarse river sand intermixed with leaf-mould will be found to answer very well, with about one inch of silver sand on the top, for the purpose of inducing the cuttings to root freely. Water gently with a fine-rosed pot, then plunge the pots in the propagating pit, where there is a gentle moist bottom-heat, where in the course of three weeks they will have made roots enough to stand potting off. You may now pot off singly into three-inch pots in a light open sifted compost of rich loam, leaf-soil, and sand, equal parts, and if you have any bottom-heat to spare they will be the better to be plunged in it for a day or two, to give the young roots a start. They may now be removed to a warm pit or vinery, or whatever you find most convenient, where the atmosphere is kept moist, which will ensure a strong, healthy, and vigorous growth. When you find the pots full of roots repot into six-inch pots, using for this shift a good rich compost of turfy loam two parts, one of old rotten cow-droppings, leaf-soil, and sand. As this will be their last shift this season, care must be taken to provide good drainage; this can be secured by putting in plenty of potsherds, with two or three bits of open turf or moss over all. As the plants will now be pushing strongly, they must be tied to a neat stake, as they will be sending out laterals or side shoots. As the making of these side branches secures the formation of the plant, a little weak sheep's dung liquid-manure will be found very beneficial at this period of their growth. As the first tier of laterals has made its first joint, pinch it at that; this will not only enable you to have two shoots from each lateral, but will cause the leader to push away, and furnish you with plenty of side wood. The four first tiers of laterals will be enough to pinch this season, the rest may be allowed to grow on. They will be forming nice little plants now, so they may as well be taken to the greenhouse or conservatory, where, with a gay profusion of flowers, they will assist in keeping the house "dressy" for a short time. By the middle of November water should be withheld gradually, in order to ripen the wood, and they may be placed in a dry cold pit, or any out-of-the-way place, such as under the greenhouse stage, for instance, where they must remain all winter, as they will require no more attention till the end of February, when a little water may be applied sparingly to induce them to start; the knife must now be applied to cut back the side shoots that were pinched last year, to the second joint on the wood they made after they were pinched, and a couple of tiers of single shoots to the second joint, the rest to the first, and the leader to within four inches; thus you will have a pyramidal basis to work on. Place them now in a warm vinery, and they will soon show indications of rapid growth. After they are fairly started turn them out of their pots, and shake off all loose soil, and examine the roots; repot now in ten-inch pots, using strong fibry loam of a rich texture, old cow-dung, leaf-soil, and sand, equal parts, well mixed. As stated for last season, attend well to drainage, as they will require no more pot room this season; replace them again in heat, and pinch in according to the directions laid down for last season, always aiming at having the plant broad and full at the pot, and tapering to the top. Pinching should, however, be stopped after the 1st of June, for by the middle of the month they should get a prominent place in the conservatory, where, by July, they will be the objects of the greatest admiration in the house; liquid-manure must not be omitted upon any account at least three times a week, as this is now the only thing the plant will derive its nourishment from, and will cause it to bloom right on till October, when it will be getting unsightly, snd may be removed out of doors to make room for some other favourite. When cold nights set in, remove them as before to a cold pit, etc. No more attention will be neccssary till spring, when they may be pruned and started according to the time they are wanted in bloom. They can be had in bloom, by putting a few into heat by the beginning of January, about the middle of May; others, started accordingly, will enable you to have them in flower all the summer. Mr. Bousie's plants to be so fine now were doubtless struck in autumn; mine are chiefly for display late in summer.—*W. F.* (*Gardener's Chronicle*).

BRIEF REMARKS.

THE LUCULIA GRATISSIMA. *Fragrant Luculia.* By "Amicus."—In order to bring into that notice and extent of culture it so deservedly merits, I beg to introduce it to the readers of your Magazine again. Last autumn I had a plant in bloom, that had numerous heads of flowers, which were from ten to twelve inches in diameter, similar to the largest of the Hydrangea, each lovely pink blossom being an inch and a half across, or more. Dr. Wallich, its discoverer, says of it, "It is impossible to conceive anything more beautiful than this tree when covered with its numerous rounded panicles of pink-coloured, very fragrant, large blossoms. It is a native of Nepal and Sylhet, in the former country growing in great abundance on Nag Urjooro and some of the other smaller hills in the valley; also at Bechiako and Koolakan; it delights in exposed, rather naked, situations, flowering, according to the locality in which it is found, nearly the whole year through. I can well conceive that the plant deserves this praise from what I saw of it, and still more so from the account with which I was supplied by the individual who managed the specimen I was favoured to see. The plant of Luculia had been cultivated by me in a pot for two years, and with tolerable success; but observing it to look very sickly, I determined to try the experiment of putting it into a large box, of which there are several, fitted at the back of a house, intermediate between a greenhouse and stove, and designed for climbers. This was done in March, and the plant soon began to show, by its vigorous shoots, how well this change of treatment suited its nature. By the month of October it had attained a height of six feet and a half, each shoot being terminated by a magnificent head of flowers, similar to what you saw; the larger bunches, of which there were twenty-four, measuring three feet in circumference, besides thirty smaller ones. I am inclined to believe that the atmosphere of a stove is *too hot and close*, and that of the greenhouse rather too cold and damp, considering the late season at which the Luculia flowers; whereas, in the place to which it was removed, I frequently give a little fire heat by day *during autumn*, thus allowing air to be admitted at the same time, and the windows to be opened without detriment from the external cold. The soil in which it grows consists of a mixture of *loam and leaf-mould*, with bits of charcoal intermixed, and a free drainage. I am not aware that any other peculiar management is required, except *daily syringing during its growth to destroy the red spider*, to whose attacks it is extremely liable; also, after the *spring growth*, the young wood requires to be gradually *hardened* off, and towards autumn be placed *out-doors;* the plants will then bloom fine *in-doors*, on being taken there in due course.

THIRTY-SIX BEST PANSIES.—I annex the names of thirty-six of the best Pansies in cultivation, according to my experience in growing every good variety known. *Twelve Yellow-ground Varieties:* Alice (Downie & Laird), Ajax (Oswald), Lord John Russell (Turner), Alpheus (Dickson & Co.), Emperor (Hales), Hampden (Oswald), Duke of Newcastle (Turner), Monarch (Hale), Rev. H. Gossett (Turner), Lord Palmerston (Turner), Father Gavazzi (Holland), Sir John Cathcart (Turner). *Twelve White-ground Varieties:* Beauty (Downie & Laird), Nonpareil (Dickson) Duchess of Sutherland (Turner), Lord Raglan (Campbell), Royal Standard (Dickson & Co.), Minerva (Dickson & Co.), Marion (Dickson & Co.), Earl Mansfield (Dickson & Co.), Royal Visit (Dickson & Co.), Charles Cowan (M'Nab), Argo (Galbraith), Marchioness of Bath (Wheeler). *Six Dark Selfs:* J. B. Gough (Downie & Laird), Duke of Sutherland (Tunley), Royal Albert (Turner), Medora (Downie & Laird), Fanny Kemble (Downie & Laird), Memnon (Turner). *Three Yellow Selfs:* Sovereign (Dickson & Co.), Wonderful (Hooper), Golden Eagle (Dickson & Co.) *Three White Selfs:* Royal White (Thomson), Mrs. H. B. Douglas (Downie & Laird), Countess of Strathmore (Hampden). The varieties are inserted as they stand progressively in quality.—ROBERT R. OSWALD, Vauxhall, Birmingham.—*Midland Florist.*

DRAINAGE FOR POTS.—I am but a novice and amateur, yet little as my experience is, I have found in it the incalculable good effects of perfect drainage, and have long used a material that I have not anywhere seen noticed, although amongst the wise men of the profession it may be quite familiar—that of using the round cinder that falls, from steam-engine furnace-fires. It is clean and half vitrified, and agrees with the health of plants. I first place a few crocks to keep the hole free, then one or two inches of these ashes, then a little moss, and, lastly, the lumpy soil, etc.; by which I effect in a superior way all that is needed. The advantage that the plan possesses is, that no worms will go through these ashes, and they make a most perfect drainage.—*Senex.*

ON GENTIANA ACAULIS.—It is best propagated by seed, which should be sown as soon as ripe, in pots filled with loam and peat-mould. The pots to be placed in the shade till the approach of winter, when they should have the protection of a cold frame. In the course of the next summer the plants will be large enough to be pricked off into other pots, filled as before, and put in the shade. They should be kept in frames during another winter, and in the second spring they will be fit for final transplantation. It is necessary to observe, that if edgings are to be made of this plant, they should be planted at least four or five inches within the border or clump; and if planted in "patches quaint," should seldom be moved, as few plants suffer more by being disturbed. A moist rich loam is the best soil for this plant.—*Isabella.*

FLORAL OPERATIONS FOR NOVEMBER.

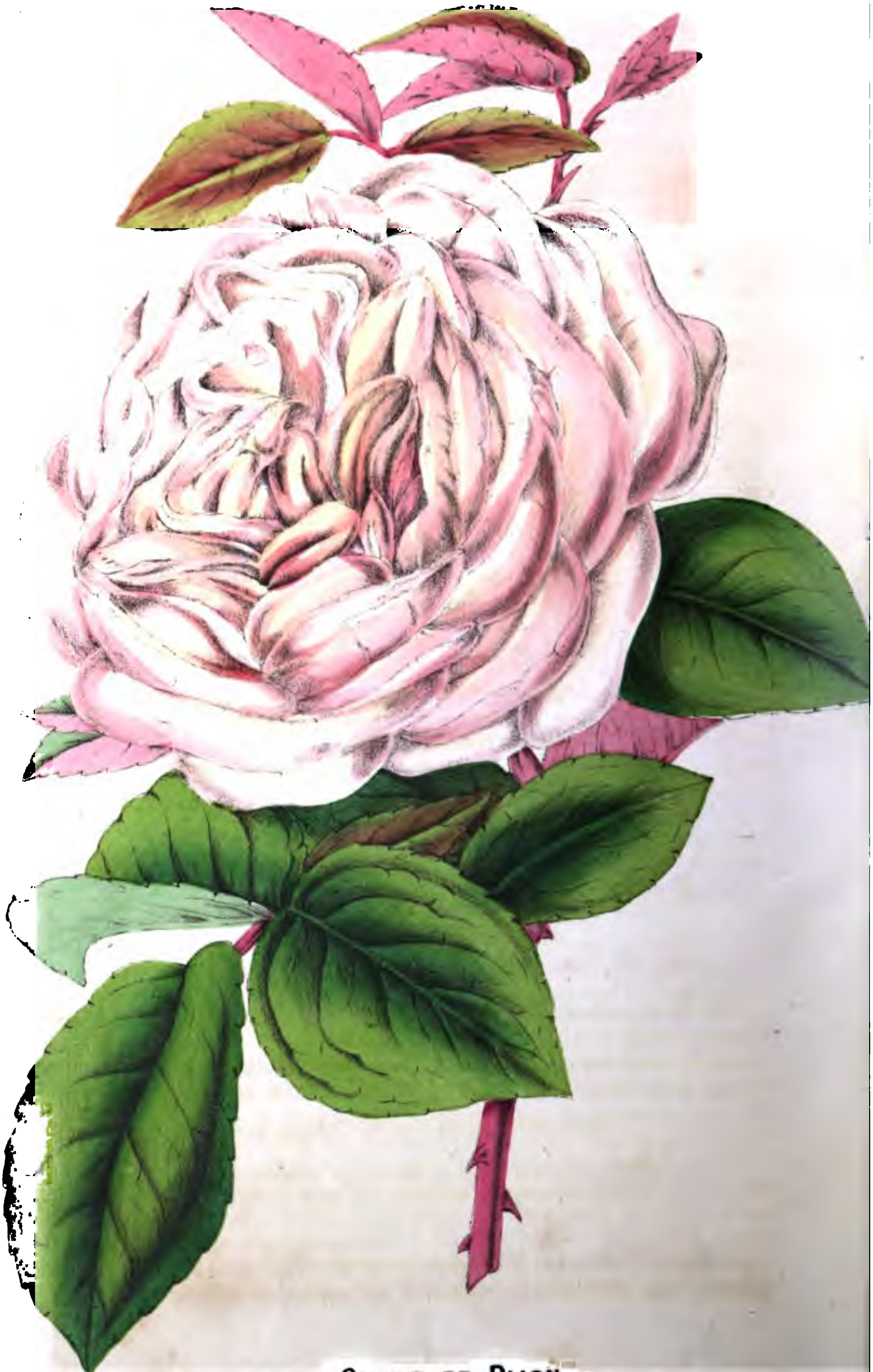
FLOWER GARDEN.—*Anemones* and *Ranunculuses* still plant for early spring bloom.

A number of the *Turban Ranunculuses* in patches are very showy. *Tulips:* plant immediately. A bed with raised sides, six inches high, is usually preferred, and having the surface of the bed a few inches higher in the middle than the sides. Let the bulbs be covered four inches deep. *Hyacinths* for a bed should be planted directly. *Auriculas*, *Polyanthuses*, etc.: allow a free circulation of air between the sides of the pots; raise the frame a few inches, and leave an opening. *Carnations*, etc.: have all air possible, but guard from excess of rain and severe frost. *Dahlias:* take up on a dry day; allow the stem to remain about half a yard long at present; in a fortnight afterwards cut it to six inches or less, if tolerably dry. *Chrysanthemums:* allow all air possible, to prevent them being drawn up weakly. Every other watering at the roots must be with liquid manure. Thin the flower-beds, and, if required for exhibition, only retain one flower to a shoot. *Pink and Pansy beds:* have small sticks pricked among the shoots or round the beds, to prevent the plants being twisted off by the wind. *Mildew* sometimes attacks *Carnations*, *Pinks*, and *Pansies*, and causes the leaves to be spotted; dust the foliage under and over with sulphur. *Hollyhocks:* the sooner planted, the better they will bloom. *Lobelias* of the tall class, in beds, should be taken up and placed in shallow pans or boxes, closely together; give but *little* water during winter; they may be kept in any cool place free from frost and damp. *Verbenas:* keep near the glass, give all air possible; only preserve from fogs and frost, and examine the under side of the leaves, to see if green-fly be there; if so, fumigate directly. If *mildew* appears, apply sulphur, only give water to the roots to keep the soil *just moist.* *Dress flower-beds:* give an addition of fresh soil and manure, divide and replant perennials, biennials, etc. Let a liberal profusion of spring flowering *bulbs* and herbaceous perennials, etc., be planted in beds and borders *near* to the dwelling-house, as *Crocus*, *Aconites*, *Snowdrops*, *Scillas*, *Hyacinths*, early *Tulips*, etc.; and *Hepaticas*, *Double Primroses*, *Polyanthuses*, *Auriculas*, *Wallflowers*, *Brompton Stocks*, etc.; also the little *Arabis grandiflora*, *Draba aïzoides*, *Erica carnea*, *Dielytra spectabilis*, *Sedum oppositifolia*, *Turban Ranunculus*, and *Anemones*, etc. They produce a cheerful appearance during the spring months, and are handsome to be viewed from the rooms. If severe frost occurs, protect beds of bulbs. The stock of bedding plants must be looked after, whether in cutting, pots, or otherwise; allow plenty of air on all suitable occasions; do not *over-water*, rather have them nearly dry during the season of rest. Fill spare beds with evergreen shrubs that are in pots.

GREENHOUSE, ETC.—*Pelargoniums:* Repot the show class, give plenty of air, not too much water; fumigate if green-fly appear. Stop the lead of every shoot of the large plants which are wanted to be in bloom in June, towards end of month, and also of the young plants struck the past summer, to cause them to push side shoots. *Azaleas*, for early bloom, place in higher heat, and keep those *cool* which are to bloom late. *Calceolarias*, keep in a cool place just from frost; cuttings strike well now. *Tropæolum tricolorum*, and other tuberous roots, must now be potted, if to bloom next season. *T. Lobbianum*, *Hookerianum*, etc., encourage; they will bloom through winter. *Salvia splendens*, *fulgens*, and *gesneriflora* encourage; they are fine for autumn and winter bloom. *Chinese Primroses* repot. *Chrysanthemums*, keep in airy cool situations. *Oxalis elegans* and others will bloom by due attention. *Neapolitan* and *Russian Violets* have in abundance in frames. *Ixias*, etc., now pot and place in a cool situation, or plant out of doors in a warm place. *Cactus truncatus* will now show for bloom. *Cinerarias* keep in a frame near glass, but preserve from frost. A few may be forced for winter bloom; fumigate with tobacco, to save from ravages of the green-fly.

FORCING STOVE OR PIT.—Now have a stock of all the winter flowering plants brought in; begin with a temperature of about 55°, and increase gradually up to 75°. In addition to all bulbs, see the list in last month's calendar of winter blooming plants.

SHRUBS AND TREES.—If evergreen shrubs and trees were not planted last month as directed, they should be immediately; the earlier the more successful. Plant *Roses* now; it is the best time. Give six inches thick of well-rotted dung to all standard and other roses; take off a portion of soil, lay on the manure, and cover with earth. Prune *Roses* of any class but the *China*, *Tea*, and *Banksian*.



GLOIRE DE DIJON.

The Floricultural Cabinet.

DECEMBER, 1855.

ILLUSTRATION.

ROSE, GLOIRE DE DIJON.

Rosa is derived from the Celtic *rhod*, *red*, in reference to the prevailing colour of the flowers at the period when it was given. The name now carries with it a charm, as well for the beauty as the unrivalled fragrance of its flowers, and it has justly been the theme of writers from the remotest antiquity, as a favourite and universal object of nature among all civilized nations. Mrs. Hemans has composed the following beautiful lines on this exquisite flower:

"How much of memory dwells amidst thy bloom,
Rose! ever wearing beauty for thy dower;
The bridal day, the festival, the tomb,—
Thou hast thy part in each, thou stateliest flower.

Therefore, with thy sweet breath come floating by
A thousand images of love and grief;
Dreams fill'd with tokens of mortality,
Deep thoughts of all things beautiful and brief.

Not such thy spells o'er those that hail'd thee first,
In the clear light of Eden's golden day;
There thy rich leaves to crimson glory burst,
Linked with no dim remembrance of decay."

The Rose is thought to have given name to the Holy Land, where Solomon sang its praise; as *Syria* appears to be derived from *Suri*, a beautiful and delicate species of Rose, for which that country has always been famous, and hence called Suriatan, *the Land of Roses.*

"Each common bush shall *Syrian roses* wear."
Virgil.

"Who has not heard of the vale of Cashmere,
With its *roses* the brightest that earth ever gave."
T. Moore.

Ludovica Verthema, who travelled in the East in 1503, says that *Tuscany* was particularly celebrated for roses, and that he saw flowers both red, white, and yellow. Sir William Ouseley states in his work on Persia, that when he entered the flower garden belonging to the governor of a castle near Fassa, he was overwhelmed with roses. The celebrated Princess Nourmahal caused an entire canal to be filled with rose-water, for the gratification of the Great Mogul. The heat of the sun disengaging the water from the essential oil of the rose, this substance was remarked floating on the surface of the canal; and it was thus that the essence of Otto of Roses was first discovered.

The Rose we now figure belongs to the section termed *Tea Roses.* It is a seedling obtained by MM. Jacotot, of Dijon, who exhibited it recently at the Horticultural Society's show at Cote, in France, the grand medal was awarded for it, and the judges named it THE GLORY OF DIJON. Subsequently it was shown at the exhibition of the Horticultural Society of the Seine, in Paris, and the Lady Patronesses' large gold medal was awarded for it. The plant is of vigorous habit, handsome large foliage, rich shining green above, with the under side of the young leaves a beautiful carmine-red. It is a free bloomer, producing *large flowers* (we have seen some as much as five inches across, of a full double), they are ***most delightfully fragrant.*** In ***dry*** situations it proves to be quite hardy, either upon its own roots, or worked upon other stocks. It is a charming plant for the greenhouse, either planted out in a bed or in a pot, and for forcing is ***superior*** to any other Rose; by proper treatment, a succession may be had ***all the year.*** Being so valuable an acquisition, and easy of propagation, plants may be had at most of the principal nurseries of our own country, at a very reasonable price.

BULBOUS ROOTS.

BY MR. CHARLES BERNARD SAUNDERS, OF CÆSARIAN NURSERY, JERSEY.

WHY bulbous-rooted plants are, as a general rule, less the object of the British gardener's attention than others is a question which has often suggested itself to my mind, for they are almost endless as to varieties and seasons of blooming. Before the snow leaves the ground, in the commencement of the year, we find the ***Winter Aconite*** producing its pretty little buttercup-like flowers, and contrasting their *golden* beauty with the driven *whiteness* of the surrounding surface, quickly succeeded by the *Snowdrop*—which hangs its lovely head in the most perfect semblance of humility, emblematising charity in one of its most simple forms—followed by ***Croci***, innumerable as to colour—yellow, blue, white, striped, cloth of gold, cloth of silver, and many more—as well as beautiful in form. Then come the pretty little Tulips: ***Duc de Van Thol***, arrayed in crimson and golden hues, symbols of the rich vestments of the royal Duke, whilst the pretty *Duchesse de Parma*, though less richly clothed as to colours gay, proves, by the pretty contrast of purple and white, all that modesty of appearance which gives grace to its charms. Numberless others belonging to the same train vie with each other in endeavours to produce an effect which elevates the mind as well as pleases the eye. *Tulips*, though less fashionable now than they were a century ago, are nevertheless beautiful flowers. It is true we cannot all stand at the end of the canopied bed and say, with the enthusiastic admirer, "That bed is worth hundreds of pounds;" nor would many of the accomplished young ladies of the present day be considered very desirable partners for life, if their sires could only present them an "unique root" of some particular variety of Tulip, as a marriage portion, unless other qualifications compensated for the deficiency. No; we would not wish any to enter so arduously on the love of Tulips, for fear they might prove the truth of the aphorism, "hottest love is soonest cold;" but we would have them so far enter into the spirit of enjoying them, as to feel a glow of delight in looking at them, and distinguishing the marked characteristics which constitute a good flower, as well as to feel they were deservedly the objects of their admiration, not of adoration.

Thus enlarging on the love of Tulips has led us from the regular rotation which we had purposed following, and we must now bring up the rear. *Winter Aconites*, *Snowdrops*, *Croci*, and *Early Tulips* are followed, if not preceded, by *Hyacinths*, in all their fragrance, beauty of colour, and wax-like perfectness of form. My lady's boudoir and drawing-room, no more than the humble cotter's windows, is too select a situation for their charms; and as Mynheer manages to supply us with them at such a moderate rate as to enable us all to enjoy them, why are they not more generally esteemed, and more generally cultivated, and why do the positions in which we find them growing prove the exceptions instead of the general rule? Could not efforts be made to cultivate them at home instead, of looking to "Johnny Dutchman" for the annual supply? and could not the gratification of growing as well as flowering them be extended through the different seasons of the year? Where the soil is rich and deep, we might follow the plans they adopt, and with the same appliances, we might produce the same effects. The only answer or excuse we can offer to such a proposition is, "that our fathers did not do it before us, and that we must needs follow their routine." Hyacinths are followed by the BOLD *Crown Imperial Lily*, in its different varieties of colour, styles of growth, and variegations of foliage; and where are the plants coming into bloom on our borders, at the same period of the year, that can vie with them as to importance of appearance? Their beautiful pendent bell-shaped flowers, surmounted by the *Imperial feather*, court our attention, whilst *Amaryllis* may, with the application of a little bottom heat, be made to follow suit. The pretty dwarf varieties of *Sparaxis tricolor*, of hues innumerable, and contrasts unequalled in artistic combinations, with *Ixias*, in all their graceful styles of growth and beauty of colours, bid defiance to flowers as a whole, for competition as to elegance. *Oxalis*, too, now claim their position and demand our regard—to repeat the claim once more towards the close of the season. *Scillas* now produce their bold umbels and spikes of bloom, and the pretty *Peacock Iris*, or *Vieusseuxia glaucopes*, expands its pretty flowers from the scathes, which contain one, two, three, and sometimes four or even five blooms, in which its pretty contrast of white and blue displays itself, as the most perfect symbol of a combination of chastity and beauty; and I shall be lost—aye, perfectly lost—if I attempt to describe all the other beautiful bulbous-rooted plants and flowers I am accustomed to see at this midsummer season of the year. But as I left all the varieties of the *Narcissi* unmentioned when I descanted on the beauties of the *Hyacinth*, I must also leave many here unnoticed, and proceed to mention that *Gladioli* now begin to show their beauties and expand their delicate petals, beginning with the varieties which have been raised with and from Colville's hybrid, taking up *G. insignis* and the distinct and classically-correct marked *cardinalis*, with the intermediate varieties crossed from *G. ramosus*, and continuing with the beautiful varieties of *G. Gandavensis*, which are the offspring of the now disregarded *G. Natalensis*, some of which are still in bloom (November 7), during which period we get *Liliums* in great variety and beauty of growth, both of plant and corolla, which, combined with their fragrance, make us like them best when we know them most.

Bulbs not only show their beauties in winter, spring, and summer, but in *autumn* also our gardens continue to be adorned by their pretty flowers. The pretty *Colchicum autumnale* flowers late, and, in *sheltered situations*, is still in all simplicity displaying its nakedness of stem. The Guernsey and Jersey Lilies (*Nerine Sarniensis* and *Amaryllis Belladonna*), though more rich in colours, and stronger in styles of growth, follow its example, and only produce their leaves after the splendour of their flowers is gone. The *Autumnal Crocus* (*Steinbergea lutea*) flowers at this season too, and shows its pretty contrast of dark green foliage and golden-yellow flowers to the admiring gaze; whilst the *Flower of the West Wind* (*Zephyranthes candidus*) shows its masses of white to such perfection, as to leave us unsurprised that the river on whose banks it was originally found should have received the Spanish appellation of "La Plata."

Many are the beauties I have left unnoticed in this short encomium of these objects of attention mingled with neglect, *Anemones* and *Ranunculus* to wit. Bulbs are for the most part admired whilst in flower, neglected afterwards, and condemned as difficult to manage. I might have expatiated more largely on their attractions, but it is not on limited space nor in a limited portion of time this is to be done; and I might be suspected of being more correct in precept than example, if I gave instructions to restrain the passion as to TULIPS, and allowed the objects of my love to make me unlimited in their praise.

That bulbs might be cultivated to a greater extent advantageously, and very much to the decoration of our gardens, I am persuaded. I could meet many of the objections which might be raised against them. Don't think me vain, reader; I would meet, I should have said. Objections are very often met in a very unsatisfactory manner, excepting as far as the individual meeting them is concerned. I have long practised and enjoyed the cultivation of bulbs, and find the pleasures attending it to be continual, inasmuch as I find that with care they may be made to last all the seasons through, and some may be had in bloom *every month* of the year.

REMARKS ON LANTANA SELLOVIANA.

BY MR. GEORGE HARDING, DUNHAM-MASSEY PARK, NEAR ALTRINCHAM, CHESHIRE.

This *Lantana*, although a stove plant, flourishes as a bedder, and in my opinion far surpasses many; so far in comparison as *gladness* is to *sadness*. Having frequently had the pleasure of seeing and observing how beds of it have been admired by visiting parties, one after another, time after time, and all always, or pretty nearly so, in the same tale, such has convinced me of its value as a bedder, and caused me to fall in love with it, as John Derby did with Mary Gold, not to be extinguished for a trifle, Oh, no! but rather advocate a more extensive cultivation in every garden, great and small.

It has the habit of the old but much-admired *Verbenas, Sabini*, and *Melindres superb*, and, like them, is suitable for beds *near* walks, to soften off what would appear hard into a finer finish. To manage plants of this, there is no more difficulty than with *Heliotropiums* and *Ageratums*. The treatment is the same, but requires a little more heat than those *during the winter*, to keep them in good health, and in spring, to enable them to push vigorously, so that the plants may be well established previous to planting out.

It forms a bed with little care,
And does bloom freely, wondrous fair.

I must again say it is a great favourite of mine, either grown as a pot plant or a bedder, and therefore offer my brief remarks as an advocate for its far more general culture, hoping some little good will be the result.

A FEW WORDS ON HYBRID RHODODENDRONS.

BY MESSRS. STANDISH AND NOBLE, OF BAGSHOT NURSERY.

A few months since a discussion was carried on in the pages of the *Gardener's Chronicle*, relative to the merits of certain races of Rhododendrons. The subject was, in a garden sense, an important one; and we ventured, in taking part in the discussion, to advocate views which from experience we knew to be correct.

The originator of the discussion, "J. R.," endeavoured to prove that grafted Rhododendrons were inferior, for garden decoration, to plants on their own roots; and that seedlings from *R. arboreum* were much to be preferred to any of the numerous hardy hybrids now so generally cultivated.

It appears to us worth while to reproduce here the substance of what we said in reference to the advantages of really hardy hybrids over the numerous progeny so warmly eulogized by "J. R.," which indeed are but seedlings direct from, or but once removed from *R. arboreum;* and especially as the past severe winter has more than verified our opinion, that such plants are worthless for out-door culture. Very many cultivators have yet to learn what the qualities are which a Rhododendron for successful cultivation in the open ground should possess. We believe we shall be doing good service in giving that information.

The hybrid Rhododendrons now so generally grown are from crosses and intercrosses between the Indian *arboreum* and some hardy kind, as *ponticum, catawbiense,* or *caucasicum;* with these materials the hybridizer has produced the greater part of our innumerable cultivated varieties, and which are every year being added to. Nor must it be supposed that the varieties which we already possess are merely augmented in number by such additions. On the contrary, some desirable quality, either in the shape or size of their flowers, or in the brilliancy of their colours, or plants that bloom at an earlier age and in greater abundance, are some of the advantages which are constantly being obtained; or a combination in the same plant of qualities previously existing in separate ones, or perhaps a more hardy constitution is infused into a particular kind; at all events, with each addition to the number of existing kinds, the aim is to produce and to perpetuate some desirable quality or qualities not previously obtained.

Now it is well known that seedlings from, or even once removed from *R. arboreum* are not suited for general culture. We have nothing to say against the beauty of their flowers, for they are undoubtedly very attractive; but as they are generally produced very early in the spring, they are in the majority of seasons, and in the absence of artificial protection, much damaged or wholly destroyed. However much the advocates of these early blooming plants may write or speak in their favour, we know too well that the delicate petals of a Rhododendron cannot be preserved in beauty when subjected to the influence of cutting winds, driving rains, and a temperature of eight or ten degrees below the freezing point in March or April.

We are frequently told as a piece of valuable information that, in the garden of Mr. So-and-so, there is a magnificent hardy Rhododendron, with deep red or crimson flowers, which are generally in full bloom in February or March. Sometimes we hear of these prodigies in January, when the season has been very mild; and such information is usually followed by a hint that it would be much to our advantage to make interest with the fortunate possessors of such treasures for a plant or two of the kind.

Sometimes we are induced to have a peep at these prodigies; not for our own gratification, however, for we are always well prepared for the kind of exhibition that awaits us. The plants are generally surrounded by an ugly framework of poles and rods, with an addition in the shape of a collection of old mats, pieces of carpet, scraps of canvas, and a bundle or two of straw, lying at hand in a convenient corner, to protect with in frosty nights (and in the day too, when cutting winds and pelting rains prevail), forming altogether by no means a gardenesque scene. But of course that is of little consequence; doesn't the plant live in the open air and bloom in winter?

Now we simply ask what are the advantages which these plants possess over hardy and free blooming hybrids? We confess not to perceive their superiority in any one particular. To enable the reader, however, to form a just conclusion of their respective merits, we will place their prominent characteristics side by side.

Seedlings direct from, or but once removed from Rhododendron arboreum.	*Garden hybrids; the advantages of which we are advocating.*
They never bloom till they are twenty years old, and then very sparingly.	They bloom abundantly, and when not more than three or four years from seed.
In the majority of seasons, and especially if the early part of the year is mild, the flowers, in consequence of being produced then, are destroyed or much damaged by wind, rain, and frost, which invariably follow.	The flowers never get cut off by frost; and, from being produced after spring has fairly set in, they are not liable to damage from frost or rough weather.
The flowers are usually of a very rich colour.	The various kinds produce flowers of the richest as well as the most delicate tints. Deep crimson and pure white, with all the intermediate shades, may be found among the plants in cultivation.
In very severe weather, like that of the past winter, the plants themselves are killed or damaged.	The plants are not damaged by frost.

It gives us great pleasure to be able to state that we have succeeded in raising a number of very beautiful white-flowered varieties, which possess the desirable property of blooming at the same time with the majority of hardy hybrids. All the varieties with white flowers hitherto obtained, bloom either too early or too late in the season to be really effective in the American garden. Those which we shall have to offer will supply the deficiency. Plants will be ready for delivery next season. We will add that their flowers are very large, and of good form and substance. The trusses too are very fine; and altogether these varieties are much superior to any other hardy white Rhododendrons in cultivation.

It will thus be seen that these much-vaunted tender plants possess not a single desirable quality that is not participated in by the hardy hybrids; and that the latter have very many sterling merits peculiarly their own. As we have before observed, we confess that the flowers of these first hybrids are very beautiful; but we cannot yield our opinion that the plants are, for general cultivation, all but worthless.

Although so much has already been done—so many valuable points gained and secured by hybridizing the Rhododendron—we may confidently look for still greater results. In the Sikkim Rhododendrons we have the material for giving new features to succeeding crosses. In fact, we now possess a large number of plants, the result of hybridizing, between our best hardy hybrids and *Edgeworthii*, *Dalhousiæ*, *ciliatum*, *glaucum*, etc.; amongst which we believe there will be found some very remarkable kinds. Then from *fulgens* and *Thompsonii* we shall obtain brilliancy of colour, rivalling even *arboreum* itself; while *Wightii* will contribute a yellow tint, and *Hodgsonii* the beautiful form of its individual flowers, as well as that of its fine compact truss. These are a few of the features which we shall doubtless derive from the Sikkim Rhododendrons; and many other species, not named here, present equally desirable and, doubtless, obtainable characteristics.

But there is one feature belonging to them which we have not named—their *fragrance*. To the very beautiful *Edgeworthii* this is awarded in a striking degree. So powerful is it, indeed, that one or two open flowers will impregnate the atmosphere of a large house. If we succeed, and doubtless we shall, in imparting this quality to our hardy kinds, the Rhododendron will then indeed justly claim the title of the queen of hardy plants.

TREATMENT OF THE BEST GREENHOUSE PLANTS.

BY MR. THOMAS SPEARS, GARDENER AT AYLAND ABBEY.

Having noticed that a correspondent recently solicited the practical treatment of the best greenhouse plants, induces me to forward the following as a commencement; a continuation will be sent for each successive month, till the best are completed.

Pimelia.—This handsome family of plants will, with ordinary care, grow and flower freely; and few plants better repay the cultivator for his care and trouble. Use, when potting (which should be done early in spring), some good turfy peat, well broken with the spade, but not sifted; mix with it a good quantity of sand, if it do not contain it already. When potting, take care you do not injure any of the young fibres. Drain the pots well, which should not be over-large; place a little mould over the drainage, then place the plant in the pot, and tightly press the mould between the old ball and the pot; if the mould is quite dry, which it ought to be, it cannot be pressed too tight; if a plant is loosely potted, and holes left between the old ball and the pot, the plants never thrive well. When potted, give them a gentle watering, and place them in the greenhouse, where they can have plenty of light and air; and never, on any occasion, should they be crowded among other plants, but should stand perfectly free. They also require to be kept in the house during summer, and to be shaded a few hours each day from the powerful rays of the sun. Cuttings simply prepared, planted in sand, and covered with a hand-glass, placed in the propagating-house, will root freely. *Pimelia decussata superba, longifolia, glauca, hispida, Hendersoni, spectabilis superba*, are very fine plants.

Gardenia.—Most of this genus are hothouse plants, except two species, namely, *G. florida* and *G. radicans*, which are best kept in a cool pit, from the time they go out of flower till it be desirable to make them form flower-buds for the succeeding season, when they should be shifted into fresh mould (sandy peat suits them best), plunged, or rather set, on the surface of a *pretty strong bottom heat, a moist steam heat* being kept up in the pits, and the lights kept rather closely shut. They will, by this means, show abundance of bloom buds and beautiful fresh foliage; and when they are just about coming into bloom, if removed to the greenhouse, they will continue longer in flower, and perfume the house with their delightful fragrance. They are readily propagated by cuttings of the last year's wood, planted in very sandy peat, without glasses, in a humid, rather warm atmosphere. *Gardenia florida* and *radicans* are the only greenhouse species.

Struthiola.—This pretty genus of Cape plants has of late years been rather neglected. It is a fact too generally known, that many of our old beautiful plants are nearly lost sight of; while plants much inferior to them are substituted in their stead, merely because they are new. The subject of this remark I have with pleasure seen grown to perfection in a few collections. The soil that suits them best is equal parts of good fresh loam and peat, with a little sand, sifted and well mixed together; drain well when potting, and make the mould firm about their roots, as recommended for *Pimelias;* keep them in a light and airy part of the greenhouse during summer, and never place them out of doors, as it is almost sure to kill them, they being very delicate plants, particularly *S. erecta*. In winter, they require to be kept in a light and airy part of the house, perfectly free from damp, as damp is almost sure to kill them: very often half the plants will damp away. This is frequently the case with *S. erecta;* but if potted, and carefully managed, they will soon grow and flower freely. Cuttings placed in sand, much in the same manner as Heaths, will root freely. About the middle of January is the best time to put them in, as I have found it difficult to propagate some of the species at other seasons. ***Struthiola erecta, ovata, virgata, pubescens,*** and ***tomentosa*** are the best, and bloom freely; some are fragrant too.

Leschenaultia.—The four species of this genus with which I am acquainted are free growing and free flowering plants, and will succeed admirably potted in sandy peat and placed in the greenhouse, and attended to like ***Struthiolas*** and ***Pimelias.*** A few may be turned out of doors with the miscellaneous greenhouse plants during summer. I have had them also to grow and flower freely, turned out of their pots, into clumps, in the flower-garden, where they look indeed both neat and pretty; though it must be admitted they succeed, at all seasons, best in the greenhouse, as it seems to be their proper habitation. Cuttings of the half-ripened wood, prepared and put in sand in the same manner as Heaths, put in at any time during summer, in a cold frame, and not covered with glasses, will root freely. ***Leschenaultia formosa, Baxteri major, biloba grandiflora,*** and ***biloba splendens major*** are the best, and deserving a place in every greenhouse. The fine ***blue*** flowers of the ***bilobas*** contrast beautifully with the ***scarlet*** and ***orange*** colours of the other kinds. All are profuse bloomers, and the plants are neat.

REMARKS ON SALPIGLOSSISES.

BY MR. WILLIAM RENDELL, FLOWER GARDENER, GRANGE HOUSE, NEAR MANCHESTER.

For the information of such of your readers as may be desirous of cultivating this singularly beautiful family of plants, I now, agreeably to a promise, send you an account of a method practised here, which has uniformly succeeded, to the admiration of all who have seen them.

Early in March I sow the seed, covering it about one-eighth of an inch, in wide-mouthed and hollow pots, well drained, in a compost of light yellow loam and heath-mould in equal parts, adding about one-sixth of fine white sand, and place them on a shelf close to the glass in the stove (a cucumber bed might do, but, on account of the damp there, I prefer the stove), watering with a fine syringe, so as to keep the soil just moist. As soon as they have four leaves each, I pot them into sixties, one in each, in the same compost, only adding a little fine vegetable mould, taking care to drain well with broken pots about the size of peas. I place them again on the shelf before mentioned, shading them until they can bear the light without flagging.

As the plants advance in growth they are potted into larger pots four times. I flower them in pots about six inches wide and eight deep. To cause them to flower strong, *I remove them, after the third potting, into a cold frame* facing the south, and on all fine days expose them, by drawing off the lights, to the full air and sun. This makes them grow stiff and bushy. When the greenhouse plants are removed into their summer situation, I give the *Salpiglossises* their last potting, and take them into the greenhouse, giving every day plenty of air, and I find they flower much finer for the previous exposure.

Salpiglossises will grow and flower in the beds of the flower-garden in a satisfactory manner, provided they are planted out from the pots about the 1st of June, in rich *dry soil*, and a *sheltered situation;* but in my opinion, and my success bears me out, the situation to show them to the greatest advantage is in the greenhouse, amongst Cockscombs, Balsams, Achimenes, Coccinea, and others, with some species of Gloxinia. There they will flower in profusion, and with proper management produce seed in abundance. Their large and beautiful yellow purple, sulphur, lilac, white, and blue flowers, handsomely striped and spotted with other colours, are exceedingly ornamental.

I usually sow a little seed in September, for the purpose of having plants to bloom *early* the following spring and summer. As soon as strong enough to pot off *singly*, I do so into small sixties. I keep the plants through winter in a cool *but dry* pit-frame, giving them an airy situation, so they are not *drawn up weakly*. Care is taken not to water over the tops during winter, or they will probably rot. In February I repot each plant, and use forty-eight-sized pots, a liberal drainage, and rich compost. These plants usually begin to bloom the first week in April, and continue in great beauty till the end of July, when the *spring-sown* plants are beginning to bloom. Some of the smallest of the *autumn-sown* plants may be kept in the sixty-sized-pots till the end of April, and then be turned out with entire balls into a bed or border in the flower-garden, giving a little protection overhead, if weather be cold, by a garden pot being placed over each during night. I have had magnificent beds of them blooming from May to October. A goodly number of *varieties* are exceedingly handsome and interesting. The plants are usually from a foot to half a yard high.

CYCLAMEN PERSICUM.

OBSERVING one of your readers solicits information on the culture of this fragrant flowering plant, I applied to a friend who grows it extensively, and blooms it with much more vigour and profusion than I ever saw elsewhere, and he supplied me with the following particulars.

The *Persian Cyclamen* is very easily injured by wet, and it cannot be kept in a state of vigour for any length of time, unless it be kept quite dry during its season of repose; and on this account the tubers should be taken up as soon as it has done flowering, and kept out of the ground, like the bulb of a fine tulip, till the season for planting (September) returns. When the plant has done flowering, which will generally be about May, the quantity of water should be gradually diminished, till at last the earth becomes quite dry. The tubers should then be taken up, and laid, with the fibrous roots uppermost, to dry. When these have withered, they should be rubbed off, and the tubers kept quite dry in a warm place till the beginning of September. They should then be planted (care being taken not to bury the crown of the tubers), and regularly watered; being kept as warm as possible till the leaves have expanded, and the flower-buds have formed, when the plants should be placed in a cool, airy situation to flower. Where there is a hotbed frame, the pots in which the plants grow may be plunged in that; and where there is not, they should be kept in a warm room. It has been already mentioned that the tubers should not be entirely buried in the soil; in fact, they should be only lightly put in, the greater part appearing above the surface. The pots should be well drained, a layer two inches thick of broken pots, or, what is better, of cinders, being placed at the bottom. The soil should be loam, mixed with thoroughly decayed leaves, or part of an old hotbed. The plants should be regularly watered; twice a day when the weather is clear and dry, and once when it is moist or cloudy; but the water should never be suffered to stand in the saucers, the saucers being emptied as soon as the water has run into them. When the leaves have fully expanded, the plants should be allowed as much air as the weather will permit, to prevent any danger of their damping off.

To raise young plants, the seeds should be sown as soon as they are ripe, and the young plants should not be transplanted till the following April. They should be kept in a dry, warm, airy situation, and have very little water during winter; enough to prevent the fibrous roots from withering is all they require. In April the tubers should be taken up, without injuring the fibrous roots if possible, and replanted in separate pots, well drained, or in a bed in the open ground. The latter plan is best where the situation is dry, as it strengthens them very much; but care must be taken to cover them with a hand-glass if the weather should be cold and wet, though in fine weather they should have as much air as possible. In September the young plants should be taken up or repotted for the winter, and, if kept warm, and nursed carefully, they will probably flower the next spring.

A. Z.

AN EFFECTIVE ARRANGEMENT OF TREES & SHRUBS.

BY A NORTH-COUNTRY LANDSCAPE GARDENER.

If Yews be planted in proximity to a mansion, for the sake of valuable shelter from bleak winds, they should not assume a prominent position, but should be interspersed with groups of *Weymouth Pine*, and others of recent introduction into this country, Bay, etc., and be faced with Laurels of luxuriant growth. By such contrast, the gloom of their dingy leaf is relieved with vivid and glossy green; or, if the contrast appear too strong, it may be mellowed by blending *Portugal Laurel* and similar new evergreens in an intermediate position. In short, the recommendation cannot be too frequently reiterated, to substitute a studied assortment of tints for tasteless indiscriminate admixture. Let but the pictorial artist be permitted, or the amateur condescend, to transfer his principles of taste, the one from his easel, the other from his gallery, to occasional superintendence of English landscape gardening, and he would contribute to the production of a living vegetative picture, constituting incalculable improvement in style, and commanding inevitable commendation from the spectator of cultivated taste. Nay, pleasure-grounds thus constructed would excite universal admiration, and impart universal gratification. Picturesque effect, copying and harmonising with natural scenery, elicits pleasurable emotions, even in such as "know not why and care not wherefore." But for accomplishment of such an important desideratum, science must be suffered to acquire unlimited confidence, in exercise of control; while prejudice must cease to plead for senseless "custom, more honoured in the breach than in the observance." An individual proprietor, or a public association, might rest assured of the anticipation of a result decidedly warranting the experiment.

In introducing the topic of evergreen trees for formation of a foreground, it may strongly be recommended, while collecting perennial foliage of every species, to permit each variety of the beautiful Hollies to predominate. Single or combined, from elegance of shape, delicacy of leaf, and duration of mantling, they constitute an embellishment almost unparalleled, yet too frequently neglected. Of faster growth than the evergreen Oak, it attains expansion competent to the gratification of the painter's eye, with not less certainty, in the ordinary calculation of life's duration, to please and profit posterity. It should, then, on various accounts, abound in the proximity of a decorated mansion, blended with masses of Bay, backed by Deodores Cedars, Cypress, Yew, and Pinaster, and faced with Laurel, Laurustinus, Portugal Laurel, Privet, Phillyrea, Arbutus, with other flowering or variegated shrubs.

In similar relative situation, but in prominent advance from trees and unblossomed shrubs, flowering evergreens should invariably rank. Defying "the icy fang and churlish chiding of the winter's wind," the gay, cheering, precocious *Laurustinus* anticipates the lingering arrival of an English spring. Tenacious of florage and permanently retentive of foliated decoration, it is entitled to numerical predominance over every blossoming shrub. By seasonable intervention and flowering profusion it compensates for temporary diminution of ornament, in other component ingredients of a shrubbery, thus transferring to nipping winter's gloom the exhilarating semblance of summer's embellishment. Productive of such interesting impression in pleasing the eye, it certainly merits conspicuousness by prominent position.

The *Arbutus* is a shrub peculiarly elegant and eligible, from perennial decoration, rapid growth, and superior beauty in shape and tint of leaf, from delicate blossom, and glowing berry. If suffered to remain unpruned, by gaining height, it becomes hollow and leafless beneath, retaining, like other evergreens, only two years' leaves, except about midsummer, when the third year's are annexed, some weeks previous to the decay of the first. If not surrounded by evergreens more stunted in growth, for concealment of its lower leafless branches, it should biennially be deprived of a few long shoots, by application of the pruning knife, the shears being calculated to render a shrub hideously cabbage-poled. Any shrub judiciously pruned will retain resemblance of its natural form. Artificial treatment should be studiously disguised, and interposition of control be invariably concealed.

The *Phillyrea* presents striking contrast to the gay or gaudy display of flowering shrubs, being characterised by singular chasteness and unobtrusive simplicity. It is of intermediate tint, diminutive leaf, and moderate growth; consequently is precisely adapted to an advanced positition. It will there present a striking contrast to the imposing glare of variegated shrubs, whether *Holly*, *Aucuba*, or others of similar class. Here, too, that lowly, yet cheering harbinger of spring, the *Mezereum* should rank, interspersed with contemporaneous masses of Hepatica, snowdrop, crocus, red daisy, and other vernal flowers of the hardy herbaceous class. The *Cypress* is adapted, by its taper form and elevation, to relieve a structure. The *Pyracantha*, *Pomegranate*, *Trumpet Pomegranate*, *White Jasmine*—but paramount to all, the elegant *Tamarisk*—supply ornamental covering to a wall. In a sheltered nook, even these may be surpassed by the beautiful single-blossomed *Myrtle*. From mildness of climate, it abounds in Devonshire, perhaps in no instance so luxuriantly as in the garden of the clergyman at King's Kerswell, where it acquires considerable size detached from a wall, as well as height when attached. The front of a house at Bishop's Teignton has long been covered to the top by *Myrtles* of forty years' growth, protected from the easterly wind by a wing, and from the westerly by an equal defence, with the advantage of a southern aspect. I recollect being delighted with seeing a brick wall, nine feet high and about a hundred yards long, ***entirely covered*** with these charming plants; the beautiful neat ***evergreen foliage*** was remarkably pretty at all times, and during the ***summer*** there was a profusion of flowers. The plants did not require any protection in winter, though the situation was in a northern county. The garden was in an ***elevated*** part of the grounds, and had a ***dry bottom***. The face of the wall covered had a south-eastern aspect, but well sheltered by adjoining plantations.

OBSERVATIONS ON SOILS.

BY MR. WILLIAM HEDGES, ST. JOHN'S WOOD, MIDDLESEX.

It is now the opinion of some of our finest florists that a really sound loam, of velvety softness, composed chiefly of extremely fine dun-coloured silex, alumine, pale oxide of iron, and about six per cent. of chalk, all blended in such proportions by nature as perfectly to balance each other, is the staple earth of floriculture; we may add, that a handful of such a loam, if taken up and pressed strongly together, will break and separate entirely on falling to the ground; any strong-rooting vegetable, stove plant, pine-apple, melon, or flower shrub that does not require moor-soil, will flourish in it and be in health; but that if the loam be defective, it is far more safe to employ two or three year-old leaf-soil, with a good quantity of pit-sand, and occasionally some heath-mould, making up by pressure of the hand what the soil wants in solidity. In this soil all the Gloxinias, the Pelargonia, Calceolarias, Fuchsias, and many other plants, will grow freely with deep verdure of foliage; but it must never be permitted to become quite heart-dry and parched. I may add, also, that the Thunbergias will prosper in it, though not to such an extent of broad, deep foliage as in true peat. The mention of this word demands immediate explanation. Peat is now in the mouth of every one, as "bog-earth" was thirty years ago, and it occurs in all the pages of floriculture; but in no one instance is it correctly used, nor do the parties employing the term intend what they express. Peat is a short, easy word, and being used conventionally, passes for the heath-soil, or moor-earth, of Bagshot Heath, Wandsworth Common, or Hampstead Heath—the top spit, in a word, of a heath-common; which consists almost entirely of white, silicious sand, say 90 per cent., with some black vegetable remains of heath or short grass, and decayed twigs; the Prussian tests (ferro-cyanurets of potassa and soda) detect in it also a trace of iron. But peat, true peat of the turbary or peat bog, is a very compound substance, more approaching to a sodden marl than anything else. It was thus described by Davy:—"The earthy matter of peats is uniformly analogous to that of the stratum on which they repose; the plants which have formed them must have derived the earths that they contain from this stratum. Thus, in Wiltshire and Berkshire, where the stratum below the peat is chalk, calcareous earth abounds in the ashes, and very little alumina and silica. They likewise contain much oxide of iron and gypsum, both of which may be derived from the decomposition of the pyrites (sulphur and iron) so abundant in chalk. Different specimens of peat that I have burnt, from the granite and schistose soils of different parts of these islands, have always given ashes principally silicious and aluminous," etc.

A specimen of very old Berkshire peat, exposed twenty years to the air, was of close texture and grey-black; not a particle of sand could be seen in it. When broken and comminuted, *Thunbergia alata* throve in it with a luxuriance that nothing could surpass. But peats are not to be trusted; therefore we must apply to leaf-mould and heath-soil, to bind which a tenth or less portion of finely powdered pipe-clay (which consists of pure alumina and some silex extremely fine, if we mistake not) might be blended with safety and effect.

Of leaf-mould, one of the best adjuncts to the potting department, a good deal ought to be said and understood. Were it possible, we would always reject beech-leaves and laurel; the former, because they contain much chalk, and the latter because they decompose unkindly. But when we talk of *leaf-mould*, we infer the gradual decay of a wood pile, where all the twigs, amputated boughs, and leaf-clearings of the park and shrubbery are collected. Thus we obtain the decomposed bark as well as leaves, and in the course of three or four years procure ample store of vegetable earth, in three stages of laboration. The first and oldest, an unctuous substance, like old peat, rather brown, the very representative of humus, just fit to go into the earth. The second, screenings of the mass, abounding with much of the same soil, with a considerable portion of half-reduced twigs and stalks. This should stand the seasons of another year. The third, a quantity of the latter substances, and but little reduced vegetable earth. Leaves alone do not produce, by decay, a mould so valuable, nor yet so tractable, as does the wood-pile; therefore we recommend the latter. The quite-reduced three year-old mass incorporated with two-thirds of silver sand forms an excellent substitute for heath-mould.

REMARKS ON ARAUCARIA IMBRICATA.

BY MR. JAMES SMITH, N. B.

This very magnificent and ornamental tree not having been noticed in your Magazine, I forward you some remarks upon it, with a view to promote its more general introduction in the grounds and plantations adjoining to or surrounding the residences of our nobility and gentry.

That the *Araucaria imbricata* is one of the most interesting hardy trees that is at present cultivated in British gardens will be at once admitted by all who have any idea of its character, or had an opportunity of inspecting a good-sized plant, such as that in the Royal Gardens at Kew. The native country of the *Araucaria*, is the Andes of South America. It is found in large forests in the mountains Caramivida and Naguellenta, in Chili. The general aspect of this part of the country is rocky, and in some parts boggy. The latter circumstance is owing to the abundance of snow and rain which falls in these regions. The Corcovado, a mountain in the vicinity of Chiloe, is said to be studded from its foot to the snow line with this beautiful tree; it has attracted the attention of various travellers, but none has invested it with more interest than Dr. Poeppig, whose notice of it, in his travels in the Peruvian Andes, as quoted in the companion to the *Botanical Magazine*, is very interesting, and will well repay a perusal. From this paper I make the following quotation:—"When we arrived at the first Araucarias, the sun had just set, still some time remained for their examination. What first struck our attention were the thick roots of these trees, which were spread over the stony and nearly naked soil, like gigantic serpents, two or three feet in thickness; they are clothed with a rough bark, similar to that which invests the lofty pillar-like trunks of from fifty to two hundred feet in height. The crown of foliage occupies only about the upper quarter of the stem, and resembles a large depressed cone. The lower branches, eight or twelve in number, form a circle round the trunk; they diminish till they are but four or six in a ring, and are of more regular formation, all spreading out horizontally, and bending upwards only at their tips. They are thickly invested with leaves, that cover them with scales, and are sharp pointed, above an inch broad, and of such a hard and woody texture, that it requires a sharp knife to sever them from the parent branch. The general aspect of the *Araucaria* is most striking and peculiar, although it undeniably bears a distant family likeness to the *Pinus* of our country." The same interesting writer, in describing its properties and uses, says, "The *Araucaria* is the Palm of those Indians who inhabit the Chilian Andes, from latitude 37° to 48°, yielding to those nomade nations a vegetable substance, that is found in the greater plenty the farther they recede from the whites, and the more difficult they find it to procure corn by commerce. Such is the extent of the Araucarian forests, and the amazing quantity of nutritious seeds that each full-grown tree produces, that the Indians are ever secure from want. A single fruit (*Cabez—a head*) contains between two hundred and three hundred kernels, and there are frequently twenty or thirty fruit on one stem. The kernels are about the shape of an almond, but double the size; towards the end of March the cones drop from the trees, and in the vast forests which they form, the seeds strew the ground in great quantity. They are often brought to Valparaiso for sale, and hence the occasional importations of small packages to this country. The seeds are, however, mostly baked, or are otherwise too old to vegetate after reaching this country. The *Araucaria imbricata* is one of the hardiest of evergreen trees, certainly not less so than the Scotch Fir. I have seen plants of it which have stood without injury for twelve successive winters. I refer to the exposed and solitary situations in which ornamental trees are usually placed. The sexual organs are produced on distinct plants, that is, the same tree does not produce both *male* and *female* flowers; the height of the female tree is reckoned at about one hundred and fifty feet, that of the male about fifty feet. To persons who have room and opportunity, we do not know of a more interesting and noble object than the *Araucaria*. It thrives, too, in the open air, without any protection, even in the northern climate of Scotland, so that all doubt about its *hardiness* is now removed.

DESIGN FOR A FLOWER GARDEN.

BY THOMAS RUTGER, ESQ.

The garden herewith delineated, it will be perceived, has two principal entrances, one on the east side and the other on the west; small doorways are also shown at the south-east and south-west corners. The irregular border at the south, having a northern aspect, is intended for American plants, with a grass verge to continue on to the entrances on the east and west. On the north of these entrances the borders are intended to be furnished with choice hardy shrubs, parts of which may be devoted to such as have been acclimatized, and such as require a warm and sheltered situation. The pond in the centre should be furnished with a handsome fountain, and if a good supply of water should be available, the four oval basins might also be ornamented with fountains of various devices, such as dolphins, etc. The circles, two at each end, are intended for statues or vases, and the circles in the scrolls might also be furnished with statues, which would have a considerable effect by way of embellishment. The portions of grass, it will be seen, are dotted with shrubs, which should be of the most choice kinds. Should orange trees be introduced into the conservatory during the winter they can be placed on the grass, between the shrubs, during the summer, when their appearance would add much to the beauty of the garden. The wall borders, one at each end of the conservatory, are intended for handsome choice creepers. The semicircle at the north part of the conservatory may be fitted up for a sitting or reading apartment, over which there may be a dome with stained glass. Sites may be fixed upon in various parts of the garden for covered seats or alcoves.

BALSAMS IN THE OPEN AIR.

When we once take a thing in hand, we never give it up till there is no hope. We have great affection for Balsams, and we advise every Society that pretends to encourage flowers, to give prizes for the best pair, or four, or half dozen of these very beautiful subjects. To produce these in perfection, we all know there should be plenty of heat, light, air, moisture, and good rich soil, and that all these cannot be secured without glass structures of some kind; but we have regretted that so beautiful a flower should be beyond the reach of the humble gardener, and, in fact, confined to those who had greenhouses or stoves, hotbeds or pits; and this present season of 1855 we determined to see what could be done in the open ground. We have raised some in heat, and after a month under glass, set the pots out of doors—these have come to perfection. They have grown strong, healthy, bushy plants, far better than anything exhibited at the best of the shows; some sown on a warm border out of doors, but totally unprotected, have grown as handsome, but not so large, nor were they so forward; it is only necessary to attend to watering, shifting to larger pots as soon as the roots reach the side, and placing them to get all the sun, all the air, and the most vigilant care in watering. And now for a few hints as to management. As soon as they show their buds on the middle stem, let them be picked off constantly, until the side branches grow out and show theirs; then merely pick off the largest buds as they come forward, until all the forwardest buds on the middle stem are the same size as the forwardest on the side stems, when they may be allowed to bloom, and the flowers will come all over the plant and alike in size. But all this time they must be constantly shifted to larger pots, as soon as the roots reach the sides of those they are growing in. When you sow on the open border they will not be up till May, and they may be potted, first, four or five in a four-inch pot, close to the side; in this they may grow till they have half a dozen leaves, when they must be potted singly in the centre of four-inch pots, keeping the seed-leaf an inch above the soil. When the roots reach the side, put them in six-inch pots, from those to eight inch, and if you like to keep on, go to ten inch, and a foot. There is no limit to the growth of a Balsam when we have all the means at hand; but, out of doors, they should be allowed to flower as soon as the buds can be got alike in size all over. We have some hundreds of Balsams, not more than twelve or fifteen inches high from the pot, quite a foot across, and in full bloom all over, that have never been under glass since their first potting off in single pots, and we have now convinced ourselves, that in fine seasons, they make finer objects out of doors than any we saw all the season cultivated under glass and exhibited at shows. If, when they are coming into bloom, there were at hand the means of shading, the flowering season would be greatly prolonged; and if very heavy rains come on, the plants should be protected, if possible; but ours had all the rain, sun, and wind, and were nevertheless good. We have mentioned these circumstances to show that people who have no glass may cultivate the Balsam with success, and we have no less than eighteen very distinct varieties to speak from, not one of which has suffered from the weather of the present season. The most remarkable of these are a scarlet flake, as double and fully as large as a Carnation; a purple flake on a pure white ground, and a white ground speckled all over with minute splashes of rich purple—these three we have had two years, but so difficult to seed, in consequence of their doubleness, that we have not had till this season a grain more than we wanted, but they are fine additions. They will enrich our purple and red classes very much.

LINNÆAN LESSONS OF BOTANY.

THE twelve main terms of Botany:—1. On the outside of the Primrose a *green* sort of cup is seen, in which the *coloured* part stands as an egg does in an egg-cup. This the learner must call the *flower-cup*, but botanists call it by the Greek name—*Calyx*.

2. Within this *flower-cup*, or *calyx*, which may be cut off to show what it contains, is seen the coloured part of the flower—the part, I mean, which is yellow in the Primrose, blue in the Violet, and red in the Rose. The learner may call this coloured part the *blossom*, but botanists call it by the Latin name—*Corolla*.

3. The blossom, or *corolla*, may now be cut off, when it will be seen in the Primrose to be of one piece, while in the Rose and other flowers it is of several pieces or leaves. The learner may call each of the pieces a *flower-leaf*, but botanists call it a—*Petal*.

4. Within the flower-leaf, or *petal*, in the Primrose, five small bodies may be seen standing round in a circle, with little tips somewhat shaped like a barleycorn, though not nearly so large, and a slender stalk to support these. Each of the five small bodies the learner may call a *male*, but botanists call it a—*Stamen*.

5. The male part, or *stamen*, as we have seen, has two parts, the under part and an upper part. The learner may call the under part the *stalk*, but botanists call it the—*Filament*.

6. The learner may call the upper part of the male the *tip*, but botanists call it the—*Anther*.

7. When the tip, or *anther*, of the male is broken, or bursts, as it always does of itself as soon as it is ripe, a coloured powder is seen, which the learner may call the *tip-dust*, but botanists call it—*Pollen*.

8. When the calyx, the corolla, and the stamens are all cut away, the centre part of the flower alone will remain on the top of the stem. This part the learner may call the *female*, but botanists call it the—*Pistil*.

9. The female, or *pistil*, may be said to consist of a base, a middle, and a top. The base of the pistil is always more or less bulged out; and from its containing the seeds, the learner may call it the *seed-organ*, but botanists call it the—*Ovary*.

10. The middle of the pistil the learner may call the ***pillar***, but botanists call it the—*Style.*

11. The top of the pistil the learner may call the ***summit***, but botanists call it the—*Stigma.*

There is only one more term which I shall mention at present, and which applies to a peculiar sort of leaf, sometimes, according to the sort of plant, found on the flower-stem, often at the base of leaves, and sometimes surrounding fruits as the calyx does the corolla. This, which botanists call by more than one name, according to its situation, I shall, for the ease and convenience of the learner, call the *Scale.*

It will make it easier for the learner to master these dozen terms, to consider the several parts as placed in five circles, one within the other.

The dozen terms having been got perfectly, by going over them once and again, as well as the order in which the parts of the flower are placed on the five circles, the learner may next be taught how to find the class in which any flower is ranked by Linnæus.

HEATING GREENHOUSES WITH GAS.

Four years ago we made some remarks on this subject, and suggested its adaptation in connection with the hot-water system. Soon afterwards the principle was tested. A gentleman in London had a large room warmed by means of hot water, conveyed in three-inch bore piping, the water being heated with gas, which succeeded most satisfactorily.

Since that time we have had many inquiries about it, and replies have been sent by post, stating "several small greenhouses had been furnished with an apparatus, the water being heated by means of gas; and during the last severe winter, the structures could be kept at seventy degrees of temperature throughout the night."

Being recently informed that some improvements in this mode of heating the water with gas had been made by a gentleman in London, we availed ourselves of the privilege to see its construction for the purpose of heating a medium-sized lean-to greenhouse, and the proprietor informed us that it now answered every purpose he desired, and that the average cost of the gas during winter was only twopence halfpenny for twenty-four hours. The apparatus consists of water tank, boiler with ring jets underneath, and the usual three-inch bore pipes, flow and return, which are fixed along the front, end, and back, under the stage. This improved apparatus was constructed by a person in London, and at a ***very reasonable cost.***

The advantages of using gas are several, viz., there are not any coals used, nor the annoyance of a cloud of smoke, or any dust arising from ashes to cause the pores of the leaves of plants to be choked up therewith. It is also readily applied for heating the water, and with the kind of boiler used it is quickly done, and any person can set it in operation. If the weather be severe, the gas can (to any degree required) be kept burning through the night, and thus the temperature may be kept up to any heat desirable, without risk of injury resulting in any way.

There is not a necessity for a late attendance at night, or early in the morning, to keep up the heat, as is so frequently to be done when coal or cinder fires are used. Nothing can be more convenient and easy than this system of heating with gas; its cheapness and cleanliness are additional advantages.

It is known that attempts have been made to heat greenhouses with *gas-warmed* pipes instead of *hot water*, but it did not succeed, as it was found the gas escaped through the pipes inside the house, and the plants were damaged in proportion; but in the system we advocate, the small water-tank, boiler, access to light or stop the gas, and a zinc pipe to admit of any fume from the gas to escape, are best placed in a case, or shed, outside the house, so that no injury can arise from the gas fumes.

The same principle of heating will be very suitable for pit-frames, conservatories, and other plant structures.

HARDY CONIFERÆ.

Let us fancy what a change the whole face of this country will undergo when the splendid *Araucaria imbricata*, the graceful *Deodar Cedar*, and the many fine Coniferæ of different sorts and various habits, will be luxuriating in the same natural beauty as in their own native homes. The great fear with many is, that they are not sufficiently hardy to withstand the severity of our winters, but we believe this is an objection, in many cases, without reason. With the uncertainty that always exists about the proper management of plants introduced from countries but slightly explored, it is no wonder that a fear of failure should possess the minds of many. When we think of the tropics, we suppose that all vegetation there must be exposed to a bright sky and intense heat. But in such countries, the range of vegetation, naturally adapted for each locality, progresses as the range of temperature, from the sultry valleys to the frigid top of the mountains, extends. Therefore it requires some little experience to adapt the change of circumstances to the constitution of the plant. All plants more or less in infancy require, to a certain degree, a system of nursing. If it is expected that they should be able to bear, without injury, the trying vicissitudes of our climate in a state of infancy, this is unreasonable, for they usually will not do so, until they have acquired some strength and growth to establish themselves in the soil independent of protection. To confine the roots in a pot, and then plunged or covered to the rim in the soil, without further protection during the winter, is not giving the new arrivals a fair chance to live. The roots being confined in the pot (as the soil in some winters in frozen six or eight inches deep) become frozen, and consequently suffer. To give them a fair chance for their lives, it is necessary to protect them while in pots, and for a season or two after they are transplanted to the situations where they are to remain.

Another important consideration is the situation to be selected, that it should not be too much exposed nor yet too sheltered; but a situation where a good growth may be made sufficiently early to mature the wood before the nipping frosts appear is best. How that should be done is best explained on the general principles applied to the acclimatizing of plants. No practice that we can adopt will change the nature of a plant; but we may be able to influence its susceptibility so far by good management, as to enable it the better to withstand the many atmospheric changes to which it may be exposed. The soil being well pulverized and raised into mounds, about the middle of May, when all danger of frost is over, is the best time for removing them from the pots into the open ground, where they are to remain to ornament the pleasure-ground scenery or park views. The object in planting them on mounds is to produce a good drainage for the roots; the pulverized soil being mulched or covered with the mowings from the pleasure grounds, or with any other litter that is always very easily procured in summer, will prevent evaporation, and the moisture in the soil will be retained for the healthy vegetation of the roots. During the summer, when the days are long, the sunlight powerful, and the temperature high, the force of vegetation is excited to produce luxuriant growth. As the season advances, the days become shorter, the sunlight less powerful, and the temperature lower; a change is produced in the system of the plant, and it gradually subsides into a comparatively torpid state. As the leaves depend upon the influence of heat and light for their excitability, for the proper elaboration of the sap and for their healthy perspiration, when these influences are diminishing the plant is approaching to that state of rest in which it is best able to withstand the severity of the winter; but if the roots are not in a proper state to correspond with the atmospheric influences acting upon the leaves and branches, that balance of power between root and branch so necessary for healthy vegetation is unequal, and consequently unfavourable results may be expected to follow. Although roots may be said to be never entirely inactive, nevertheless their action will, in a great measure, depend upon the active vitality of the leaves. It is principally by the action of the leaves that the roots are excited to absorb nourishment from the soil, but when the power of the leaves to perspire watery matter, and to absorb the nutritious gases supplied by the atmosphere, ceases, the roots gradually and in less quantities absorb aqueous solutions from the soil, to supply the waste produced in the system during the summer and autumn growth of the plant, and to collect a store of organizable matter to supply the demands of the leaves and branches the following spring.

When the roots are surrounded with a superabundance of water, in badly drained soils, they absorb it in immoderate quantities, the vessels of the plant become gorged, the tissues lax, and the whole system disorganized; then they are most susceptible of injury from frosts. It is for such reasons advisable to plant them in open or exposed situations, where their growth would be gradually arrested by the coldness and other atmospheric influences of such situations. The truth of the principle is proved by the fact, that in severe winters the more exposed the plants have been grown the less they suffered, and that, on the contrary, the more they were sheltered, without being protected artificially, the more severely were they injured.

NOTES ON NEW AND SELECT PLANTS.

157. Bouvardia Houteana.—A very handsome plant, of bushy habit, and a profuse bloomer. The flowers are of a more brilliant scarlet than either *lecantha* or *coccinea*. It is a valuable acquisition for bedding purposes, much superior to any other of the genus. This grown in contrast with the new white-blossomed *B. longiflora*, produces a charming effect. Both are rapidly increased by pieces of the roots, an inch long, being placed flat on the surface of silver sand in a pot, then covered about a quarter of an inch, and placed in a hotbed frame, or similar suitable place; they strike root quickly.

158. Rheum acuminatum. Nat. Ord. *Polygonæ.*—This is the common *Rhubarb* of Sikkim Himalaya, specimens of which are in the Royal Gardens at Kew. It never grows more than three feet high, and has very broad leaves. In its native places it grows among rocks, brushwood, etc., at from 9000 to 13,000 feet above the level of the sea. It produces a large panicled head of flowers, of a bright rosy red purple; very showy. (*Fig. in Bot. Mag.* 4877.)

159. Phygelius Capensis. Nat. Ord. *Scrophulariæ.*—This very handsome ornamental flowering plant is a native of Caffreland, at Witbergen, on the sides of streams, where it was recently discovered by Drege. Its appearance is that of a *magnificent Pentstemon*, growing from two to three feet high, shrubby below, but herbaceous above, like the *Pentstemon gentianoides* and its varieties. The flowers are borne in *large, spreading*, branchy *panicles* of a pyramidal form. Each blossom funnel-tube-shaped, two inches long, slightly curving upwards, of a rich red-scarlet, yellow in the inside. Its brilliant flowers in panicles, rising near a yard high, produced in such profusion as to render it very ornamental, and highly meriting a place in every flower garden or cool greenhouse. It is supposed to be as hardy as the Pentstemon. (*Fig. in Bot. Mag.* 4881.)

160. Billbergia rhodocyanea. *The blue* and *red Billbergia.*]at. Ord. *Bromeliaceæ.*—Probably a native of South America, where iis genus abounds. They are fine plants for our stoves, elegant

and interesting. Its pine-apple plant-like leaves grow about fifteen inches long, of a dark green tinged with purple, with slight white lines crosswise, and the terminal part of the leaves are of a pretty yellow-green. The flowers are produced in a capitate thyrsus, clothed with numerous *rose-coloured* bracts below the blossoms. The flowers are about two inches long, *rose coloured* in bud, but when perfect, *white*, which gradually passes into blue at the tips. It was received at the Royal Gardens at Kew from Belgium. (*Fig. in Bot. Mag.* 4883.)

161. SALVIA ASPERATA. Nat. Ord. *Labiatæ.*—Isaac Anderson, Esq., of Maryfield, near Edinburgh, received seeds of this species from Cashmere. It grows about two feet high, erect. The flowers are borne in long spikes, of a greenish-white, each blossom is about an inch long, and about as much across the front. (*Fig. in Bot. Mag.* 4844.)

162. NYMPHÆA BOUCHEANA. Nat. Ord. *Nymphæaceæ.*—An hybrid raised between *N. Ortgiesiano-rubra* (*N. Devoniensis* of some) and *N. lotus.* The petals of the flowers are of a beautiful light rose colour, with a centre of broad golden-yellow anthers. Each blossom is about eight inches across. It requires the usual stove temperature, and merits a place in every collection of this section of plants. (*Fig. in M. Van Houtte's Flore des Serres,* 1033.)

163. VESTIA LYCIOIDES. Nat. Ord. *Solanaceæ Nicotianeæ.*—A very neat, erect, branchy, shrubby, greenhouse plant; a native of Chili, and abounds at Valparaiso. It was long ago introduced into our own country, but is not generally seen in our greenhouses; however, when properly grown, it ranks with the most elegant. The leaves are about an inch long, and half that in breadth, very neat. The flowers are produced in *terminal racemes,* drooping, similar to the common Fuchsias. Each blossom is of a funnel-tube-shaped form, with a five-parted limb (front of flower), an inch and a half long, and the limb an inch across, of a pretty yellow colour. It merits a place in every greenhouse. (*Fig. in Flore des Serres,* 1033.)

164. RHODODENDRON ROSALBA.—An hybrid obtained from *R. caucasicum-venustum.* It forms a neat shrub. The flowers are large, bell-shaped, spreading widely with the five front segments; the tubular part is about an inch long, and the five-parted limb two and a half inches across; of a beautiful bright rosy red, with a pure white edging, the tube being white also. Very neat, and requires to be in the cool greenhouse or pit-frame during winter. The leaves are neat, oval, and about three inches long. (*Fig. in Flore des Serres,* 1038.)

165. GESNERIA DOUGLASSII (variety *verticillata* of our English gardens).—An excellent figure of it is given in the *Flore des Serres,* 1030. The flowers are produced in a terminal cymose head; the one figured had *sixty-two* blossoms in a single head. Each tube-shaped flower is an inch long, of a rosy red colour, streaked and spotted with dark crimson. It is a beautiful variety, and merits a place in every stove. It increases freely by seeds.

166. KÆMPFERIA ROTUNDA. Nat. Ord. *Zinziberaceæ.*—It belongs

to a genus of curious plants, a *stove* herbaceous, and, like the Crocus, the flowers spring up and bloom before the foliage appears. Each flower rises from four to six inches high, and is somewhat in form like the Autumn Crocus, or between it and the *Iris persica.* The flowers are white and rosy lilac, streaked with a deeper colour; each blossom about three inches across; they are powerfully fragrant, perfuming the air for a considerable distance around. It has been termed the Hothouse Crocus, being therein what the Crocus is to our outdoor floral collections. It is a native of the East Indies, and blooms for some time during spring and summer. It may be had in bloom at every season, by giving the plants a due rest, re-potting and introducing some into the stove at successive times. It is a most lovely plant, and deserves a place in every stove. It was introduced into England many years ago, but is rarely to be seen at the present period. It may be purchased at a low price. (*Fig. in Flore des Serres,* 1041.)

167. Billbergia Liboniana. Nat. Ord. *Bromeliaceæ.*—Was discovered in Brazil, in the environs of Rio de Janeiro, by Libon, the naturalist. It is of medium habit, blooms freely, and very handsome. The flowers are produced in spikes; the bracts are a rich *orange-scarlet* colour, very ornamental. The *tube-shaped* blossoms are two inches long, the lower half *white,* and the upper portion a *rich blue.* The colours contrast beautifully. M. Van Houtte has plants of it. It merits a place in every collection of stove plants. (*Fig. in Flore des Serres,* 1048.)

168. Momordica charantia. Nat. Ord. *Cucurbitaceæ.* Syn. *Balsamina indica, fructu majore flavescente. Amara indica.*—It was originally from the East Indies, but succeeds well outdoors in the warmer parts of Europe, similar to the Gourds, etc. The growth of the plant and its appearance very much resemble our Wild Bryony of the hedges, and must have a similar support or trellis. The flowers are a pale yellow colour. The fruit is egg-shaped, four inches long, and the entire surface much warted; it is of a beautiful orange colour. When the fruit is fully matured the point of it splits into three equal divisions, which extend nearly to the stalk, they then spread out widely, and three rows of somewhat round, large, pulpy, pericarp-like substances appear; they are of a rich blood colour, and produce a striking contrast with the orange exterior of the fruit. It is an exceedingly interesting plant, and in its fruit-bearing condition very ornamental. It would be an object of admiration for the mixed flower-bed or a trellis. (*Fig. in Flore des Serres,* 1047.)

169. Dircæa lobulata. Nat. Ord. *Gesneriaceæ.* The *Dircæas* are a section from the *Gesnerias,* comprising such as *G. bulbosa,* etc., ll of which are natives of Brazil. The *D. lobulata* has large heart-haped leaves, and the *numerous* flowers are borne in a large branchy ymose panicle. Each blossom is about one and a half inch long, of rich scarlet colour, and very ornamental. It may be procured of M. Van Houtte. (*Fig. in Flore des Serres,* 1042.)

170. Dircæo-Gesneria purpurea. Syn. *G. purpurea.*—The leaves are very large, heart-shaped. The flowers are produced in a large terminal cymose panicle, containing sixty or more blossoms. Each flower, wide tube-shaped, is two and a half inches long, of a deep rosy purple, beautifully streaked and spotted with deep maroon-crimson. It merits a place in every stove. (*Fig. in Flore des Serres*, 1046.)

171. Scilla Natalensis. Nat. Ord. *Liliaceæ.*—This handsome species is supposed to be a native of Port Natal, from whence it was introduced into the establishment of M. Van Houtte. The flowers are produced in an upright racemous spike, nine or more inches long. Each blossom is about three parts of an inch across, star-shaped, white tipped with pale blue. (*Fig. in Flore des Serres*, 1043.)

172. Catalpa Bungei, for the first time in Europe, has bloomed at Neuilly, in France, during the past season. It forms a small tree-like plant, with handsome foliage. The flowers are produced in large, terminal, branchy panicles. Each blossom is short, tube-shaped, with a broad divided limb (face of it), a greenish-yellow. The inside, as well as the divisions, are beautifully spotted with brown. It was not injured in the least by the severe weather of last winter.

BRIEF REMARKS.

Horticultural Society of London.—The Council of the Horticultural Society have resolved, as appears by the following statement, to revert to the old system of enlarged Exhibitions in London; and it is some consolation to know that under this system the Society attained its greatest success. It is understood that in consequence of this resolution, a large part of the hothouse collections will be immediately disposed of, so as to reduce the expenses of the Garden, and leave additional funds available for the encouragement and reward of horticultural skill.—

"Horticultural Society of London,
"21, Regent Street, Oct. 23.

"In the Annual Report, made by the Council at the last Anniversary, the attention of the Fellows was directed to the very serious fact that, during the three previous years, the income of the Society had been unequal to its expenditure, and that as much as £1250 had been added to the debt during the year 1854-5. At the same time, a hope was expressed that the causes which brought about so large a deficiency would prove temporary.

"The Council have now, however, with very great regret, to report that this hope has proved fallacious, and that the debt will have been found to be again considerably increased before the close of the present year, if the present establishments of the Society are maintained in their integrity.

"It has been annually shown by the printed Reports that the principal source of income, since the year 1833, from which the garden has been maintained, was the Exhibitions there, the net produce of which was as much as £3024 in the year 1844. This fund has been gradually diminishing. In 1853 it was £1714, in 1854 only £455, and in the present year, instead of yielding any increase, the Exhibitions have been productive of a loss estimated at about £300.

"After giving this subject the best consideration in their power, and consulting Fellows upon whose judgment they are disposed to rely, the Council have arrived at the conclusion that the Garden Exhibitions will not be profitable in future. The distance of the situation from the metropolis deters visitors from repairing to Chiswick as formerly, when no similar meetings were held in places of more ready access. Nor can it be doubted that the proximity of the great Government Garden at Kew, accessible as it is by railway and water, and with whose attractions it is hopeless to contend, annually renders the Society's Garden of greatly diminished interest. Under these circumstances, the Council have no alternative but to reduce the latter establishment within very narrow limits, if not to relinquish it altogether; and, at the same time, to realize some at least of the valuable property accumulated there towards liquidating the debts of the corporation.

"The history of the Society clearly shows that it was in its most flourishing state in the year 1821, at which time its operations were confined to the encouragement of horticulture by rewards, and the publication of its Transactions, to exhibitions in London, to the distribution of seeds, etc., obtained from its correspondents, and to the maintenance of a small and unexpensive garden. The subsequent enlargement of the Society's undertakings, successful as they have been for a time, have ultimately proved beyond its resources; but the Council hope, and confidently expect, that by reverting to the old system of 1821, the Society may be restored to its former prosperity; and by restricting themselves to the encouragement of its original objects, its utility and popularity may be maintained undiminished.

"The Council are now engaged in a careful consideration of the manner in which these great changes can be best effected, as well as of the alterations which may be consequently necessary in the rate of subscription of the Fellows. Immediately after their plans shall have been matured, they will be submitted to the sanction of a General Meeting. In the mean time, in order not to lose the present season, the Council have ordered an immediate sale of stove plants—the continued cultivation of which, even through the ensuing winter, would cause a needless increase of the Society's debt—and of some other portions of the corporation property, such as Herbaria, etc., which can be disposed of without detriment to the efficiency of the Society.—JOHN LINDLEY, Vice-Secretary."

THE BEST DAHLIAS SENT OUT IN 1855.—*Best Six: Pre-eminent*, rich plum purple. *Annie*, beautiful lilac. *Agincourt*, pretty rosy purple. *Lord Bath*, dark maroon. *Ruby Queen*, bright ruby. *Nigger*, nearly black.

2nd. *Cossack*, bright crimson. *Empress*, blush, delicately edged with lilac. *Espartero*, bright red. *Goldsmith*, fine clear yellow; *Lady Folkstone*, yellow-buff, tipped with red. *Rose Unique*, bright rose.

3rd. *Admiral Dundas*, buff tinged with salmon. *Constancy*, yellowish-buff, very distinctly tipped with red. *Diadem*, dark maroon. *Dr. Reed*, dark plum. *Glenlyon*, reddish orange, shaded with buff. *Royal Sovereign*, yellow.

Six Best Fancy Dahlias: Miss Frampton, blood red, tipped with white. *Baron Alderson*, scarlet, tipped with white. *Comet*, purple, scarlet and white. *Miss Herbert*, creamy lilac, tipped with white. *Surpriser*, maroon, tipped with white *Impératrice Eugenie*, white, edged with purple.

NEW SEEDLINGS PROVED IN 1855.—*Orange Perfection;* this is a vivid orange, of medium size, excellent in all its qualities, and the best seedling of the year. *Bessie*, an excellent yellow, and been proved two seasons. *Lord Palmerston*, a rich deep scarlet, and a noble back-row flower. *Lollypop*, superb form, a salmony-buff, above medium size, and very attractive. *Mrs. Wheeler*, rather below medium size, very compact, a rich red, of fine form. *Duchess of Wellington*, good form, well up, great depth, and above the medium size, petal scarcely as good as desirable. *Miss Burdett Coutts*, shaded fawn colour, good substance, excellent cup petal, and medium size, very pretty. *Grand Sultan*, a dark maroon, almost black; it has not first-rate qualities, but still is valuable for a stand. *Yellow Beauty*, excellent form, and compact flower. *Shaded Model*, rose, shaded with pink and carmine, and of good qualities. *Cameleon*, pretty primrose-yellow, sometimes tinged with pink at the edges, and very pretty. *Eclipse*, dark purple, fine form, but by some not thought to be equal to *Pre-eminent*, which is of similar colour.

The following seedlings of 1855 possess merit, but being shown under disadvantages, their real excellences may be much superior. *Archbishop of Canterbury*, dark purple.

Corsair, dark scarlet. *Lady Raglan*, orange-buff. *Reginald*, sulphur, tipped with crimson. *Lord Raglan*, orange-buff. *Tyrian Prince*, dark maroon. Many others have been exhibited, but were of inferior character.—J. W. Smith.

New Dahlias to come out.—**Napoleon*, a salmon-buff, full size, compact, well made, rather of the *Radsville* build, but infinitely better, splendid centre to the last, and good outline, colour quite new; we saw many flowers. **Eugenie*, an indescribable rose, good in all its stages, and, like the above, very constant, because the eye is good to the last; we saw many blooms. *Rosy Duchess* is a vivid rose, and a compact useful flower of striking colour; had we seen half a dozen equally good we should have given a higher character; there was nothing wrong. **Mrs. Wheeler* can be best described by saying it is the best model of a good *Sir F. Bathurst*, but colour red or crimson, we believe (for we saw it by gas-light), an excellent thing on the first rank; best of its class. **Princess;* one of the most lovely rose colours we have, perfectly new and very rich; a bluish tint over a rich laky-pink; good in all its points, and outline above average. **Perfection*, a noble orange, good in all its points, full size and very double; centre for a cupped flower very good, the best of its class. **Duchess of Wellington*, silvery shade on a sulphury base, remarkably bright, very compact; size under medium, but a striking model for a front row. *Bessy*, a good yellow, its only fault an inclination to a high shoulder; a very bright and useful variety, petal slightly indented, but makes up well, and the centre well up to a flattish face. *Yellow Beauty*, not quite so good, the centre not so full up; in other respects a good sound flower. *Cameleon*, another yellow, very full and compact, petal very slightly indented, and appears to lose it as it ages; centre rather depressed, but a useful flower, symmetrical, double, and of a good size. *Corsair*, rather rough outline, petal a little indented, centre not quite up, but very sound; colour deep maroon red; may be useful. *Grand Sultan*, an acquisition to the dark class; petal papery, not velvety, rather rough in the outline, but well up, and symmetrical. *Sebastopol*, blood red, rather coarse, good centre and symmetrical build, but inclined to flatness on the face. *Captain Ingram*, purply crimson, papery petal, and under part shows a little; outline rather rough, but may be useful. *Enchantress*, a very beautiful, if a striped flower can be beautiful; variety after the way of *Gloire de Kain*, which it beats in size and brilliance; it is rather flat, but the best in its class. *York*, a rich lilac, badly grown, but not an unlikely flower in good hands. *Miss Burdett Coutts*, a sort of fawn colour, with darker under surface that shows a little; far too open a flower for the present day, otherwise very symmetrical, and a good centre. *Mr. Eyres*, a perfect little model of a purple flower; certainly under size, but very pretty.

All those marked with asterisks we should have if we could, whether we had others or not, for they are novel and good; the others, however, are faithfully described.

Of last year's Dahlias, Ablet's *Incomparable* and *Port Wine*, which came out at five shillings each, are in the first rank of last year's flowers.—G. Glenny, *Lloyd's Newspaper*.

Remarks on the blue-flowered Hydrangea.—Noticing the different matters mentioned in the *Cabinet* that have been employed—some with varying success and others failing entirely—to cause the Hydrangea to have blue flowers, I forward the method I adopted most successfully. My compost consists of one-half chopped *turfy loam*, and the other equal portions of fibrous peat-soil, and small bits of charcoal. In potting, I give a free drainage made of the roughest pieces of turfy peat and charcoal about four inches deep; having shook off nearly all the old soil, I repot, in a careful manner, with the above compost. The plants grow very vigorous, producing very superior heads of bloom; but what proves the most gratifying is, the blossoms become of a beautiful vivid blue.

Crocuses in Pottery.—(An Amateur Lady Gardener). The pots you allude to are of various forms, as hedgehog, bell, pyramidal, etc., each of which has a saucer of proper form. The surface of the pot (say one in the form of a bell-glass, such as is used to placed over cuttings, or the old-fashioned bee-hive) has several rows of round holes, each hole about three parts of an inch across. A light soil is used, as rotten leaf-mould with a portion of loam, and a sprinkling of moss in it, to bind the entire together. The pot being placed with its mouth upwards, a bulb is placed in each of the *then* lowest tier of holes, and a small portion of moss is placed to prevent soil being seen at the outside; then soil is filled in, somewhat firm, as high as the second row of holes; they are properly filled with other bulbs, and moss and additional soil given. This course is pursued till the whole is done, then the bell-shaped pot is turned over, with its mouth downwards, into the saucer. Water can be poured over the surface of the pot, which will enter the holes; or if desirable, the pot can be turned up, and water be given at the mouth of the pot. After being planted, place them in a *cold* pit or frame, and if required to bloom early keep the lights closed, or place them where there is a *little* more warmth. A succession may be had by placing some in a cool situation, and introducing them in due course. Crocuses do not like extra warmth, and the soil must be kept moist.

FORESTS OF JAVA.—In Junghuhn's "Travels in Java" we find an account of the remarkable forests completely covering an ancient volcanic moutain (Manella-wanzie), over 9000 feet high. The woods near the summit have a very peculiar character. One of the most frequent and conspicuous trees is *Thibaudia vulgaris*, the trunks of which here attain enormous thickness, some as much as ten, others eight, most above six feet in circumference. Affected by the exposure of the elevation, they are gnarled, curved, and abundantly branched at a height of three to six feet from the ground, their branches being very much contorted, and spreading widely. *Thibaudia rosea* and *Gaultheria leucocarpa* (fifteen feet high), *Photinia integrifolia* (twenty-five to thirty feet high), *Gnaphalium javanicum*, and *Vireya retusa*, are other characteristic plants; but *Leptospermum javanicum*, with its white-spotted dome of leaves spreading over the *Vireya*, or a *Gnaphalium* and *Hedea squarrosa*, creeping far and wide among the trunks and branches of the other trees, are particularly striking. Scarcely a tree is found of which the trunk is not short and divided low down into numerous gnarled, curling, and most irregular branches. The Tree-fern *Cyathea oligocarpa*, which rises fifteen or twenty feet high, straight as a dart, and bearing its radiating crown of fronds at the summit, becomes thereby the more conspicuous. Herbaceous Ferns are abundant, as also other Cryptogams, such as Fungi. But the most curious of this tribe are the Mosses (*Hypna*, *Leskeæ*, etc.), which clothe the trunks and main branches of the trees with cushions a foot and more in thickness, exaggerating the monstrous appearance already given by the irregular, twisted mode of growth. They also cover the damp ground to such an extent, that the flowers of the Rhizanth, *Balanopora elongata*, parasitical in the roots here, can scarcely cut their way through. While the Mosses clothe the trunks and main branches with their deep green cushions, heightening the gloom of the forest, the smaller branches and twigs are overgrown with whitish-grey Lichens (*Usneæ*), fluttering in the wind, and completing the character of such an ancient forest, hoary with time. —*The Garden Companion.*

DIOSCOREA BATATAS.—After what I formerly stated concerning this Yam, I think it no more than right to send you the result. It may be remembered that I had but one plant, a tuber about the size of a finger, or nearly so. It was started in the spring, in a very moderate heat, and when pushed a considerable length it was turned out (I have forgot the date, but not early). To give it depth of soil, which I understood to be a requisite, I raised a sort of flattish hillock on a garden border, and turned the plant out on the top of it. The stems were tied to a 3½ feet stick, but had no other care except on two occasions, when a soaking of water was given, to moisten the ground about it. About a week ago I dug up the plant, which had made two long tubers—about the size of two moderate carrots, only growing inverted, viz., the thick end downwards. I have weighed them, and I find their joint weight is 1 lb. 12 ounces; circumference round, where thickest, 6½ inches. So much for facts—now for opinions; mine is, that although it will neither rival nor supersede the potato, which no one can desire, yet, if grown to some considerable extent, it would be a very good auxiliary to that useful root. I am further of opinion that it is not nice about quality of soil, but it seems essential that it should be deep. On digging mine, I found these lower extremities from eighteen to twenty inches below, the upper end forming a longish slender neck. Next spring I mean to plant a row of it.—*Quercus.*

BRUGMANSIA KNIGHTII.—In the notices of new and select plants at Kew, the *B. Knightii* is particularly recommended. Its dwarfish habit, free blooming, large, pure

white, double pendulous flowers alike rendering it an admirable plant for a conservatory or greenhouse. I procured one, but it does not succeed well in my greenhouse. What treatment does the plant require? [Let the plant rest after the blooming is over, by only giving it water to keep the soil from being dust, and let it be in a dry situation, in a cool part of the greenhouse, or pit-frame—and only just preserve it from frost. At the latter part of February, prune back the last year's shoots so as to leave two buds on each, and place the plant where it will have an increase of warmth, and gradually increase watering. When the buds have pushed and shoots are an inch long, repot the plant; take away a good portion of the old soil, and replace with well enriched compost. When the new shoots have become strong, then place the plant where it will have more air. Early in June plunge the plant (in the pot) up to the rim, in the open ground in a sheltered sunny situation; attend to it with water, etc. About the last week in August, raise the plant up and place it in a warm situation in the stove or greenhouse, give it manure, water, etc., and it will soon come into bloom. The flowers are produced on the same season's young shoots. The same plant can be made to bloom twice in the year, by giving it an early but short rest after blooming, and then placing it in higher temperature. It is an elegant flowering plant deserving every attention; the blossoms are fragrant.]

On Dissecting Leaves.—In compliance with the wishes of A Subscriber and Admirer of Floricultural Botany I observe, that I have dissected leaves, calyxes, and capsules of flowers, by the following method:—"Cherries, Pear, Poplar, Ivy, Holly, or Maple leaves to be gathered in June or July, when the young leaves are at their full growth; put them in an earthen pan, full of rain-water, as it wastes fill it up, but do not empty out any of the water. Some of the leaves will be ready to dissect in a month, and some not in less than two. When the external membranes begin to separate, then is the time to begin the operation. The leaf must be put in a flat, white plate, with clean water: squeeze the leaf gently with the finger and it will open on one side, the green juice will press out; then the two outward skins must be stripped off, first in the middle and along the sides, where they closely adhere, and if an opening is made, they will easily come off: then wash the skeleton in clean water, and put it between the leaves of a book to dry. Pear and Holly have a double set of fibres, that must be separated with circumspection; one set of fibres is more perfect than the other." I must observe that I was not able to procure rain-water for the greater part of the leaves I have dissected, and that I succeeded without. Box leaves I found to require to remain several months in the water. Some leaves of the Spanish Chestnut I once had for more than a year in water, and then was obliged to throw them away unchanged: I have not since been able to try them again.—I have now a query to propose. I have succeeded perfectly in dissecting the leaves and the floral leaves of the Lime tree, but the skeleton of the Lime tree leaves remains green, and no washing will bleach it. Perhaps some reader of the *Cabinet* will have the kindness to inform me how to bleach them, without injuring the fibre of the skeleton. The above is a dirty and not a very sweet job, but the admirable beauty of the skeletons, in my opinion, fully compensates for the trouble.—*A Practical Lady Gardener.*

Milton's Mulberry Tree.—The mulberry tree planted by Milton, in Christ Church garden, Cambridge, when he was a student there, still flourishes. About six years ago the trunk, reduced by decay to a mere shell, was completely covered by a mound of earth, with the best effect. The old tree is now in luxuriant foliage, with abundant promise of fruit.—*Cottage Gardener.*

On American or Mealy Bug.—Having a Chinese apple tree in my shrubbery, it had for two years become infested with the Mealy or American Bug. In order to destroy it, in February, 1842, I took a quantity of the finest brickmakers' clay from a brickyard, and carefully coated the tree over with it, as far as the insect infested it. This, by excluding the air from the insects, soon destroyed them. The coating came off by natural causes. I kept the diseased portions plastered over the entire year, and it so answered the purpose, that not a vestige of the insect has been seen since February, 1845.—*A. B., Andover.*

Propagating Roses by Grafting on the Roots.—Mr. Mackenzie foreman in the gardens at Luton Hoo, in Bedfordshire (formerly the magnificent family seat of the Earls and Marquis of Bute), has succeeded admirably in propagating roses by grafting on the roots. The mode of procedure was as follows. Just as the buds were swelling, he pulled up an old rose bush, cut off some of the strongest roots, and grafted them with grafts of the *La Reine* rose and some other similar good sorts; he then potted the grafted roots into small pots, leaving only two buds above the soil, and placed the pots in a *close*, cool pit-frame. Now (August) nearly all are nice flowering plants and the pots well filled with roots.

FLORAL OPERATIONS FOR DECEMBER.

FLOWER GARDEN.—The fine open weather has been favourable to the blooming of the *Chrysanthemums* in the open air. Where the *flower beds* require to be ornamented after these flowers are cut off, provision must be made by dwarf kinds of *evergreen shrubs* in pots, such as *Laurustinus*, *Mahonias*, *Box*, *Rhododendron*, etc. *Tulips*, *Anemones*, etc., not yet planted should be done immediately. The single varieties are highly ornamental as early spring flowers. Any spring-flowering plants should now be planted, such as *Gentianella*, *Hepatica*, *Draba*, *Aconites*, *Crocus*, etc.

FLORISTS' FLOWERS.—*Auriculas*, *Polyanthuses*, etc., must be protected from overhead wet, and have all air possible in dry weather. In severe dry frosty winds, protect from such. Keep the soil just moist. *Carnations*, *Picotees*, etc., require similar attention. *Pinks*, in beds, keep soil pressed properly around the stems. A few sticks pricked among the shoots prevent the plants being twisted off. So in reference to *Pansies*. Beds of *Hyacinths*, *Tulips*, etc., require attention in protection, should weather be severe; the surface, too, carefully stirred. *Ten-week Stocks*, *Mignonette*, etc., in pots for spring flowering, should be kept free from frost, and not be overwatered. *Fuchsias*, and tender *Roses*, etc., in open beds should have mulch over the roots. Protect the stems, etc., of any tender tall-growing *Roses* or other plants, with branches of evergreen firs, yew, furze, etc. Protect newly planted tender shrubs over the roots, and from being twisted by wind. Sweet *Violets* plant in every direction near walks, rooms, etc.; especially have plenty of the lovely varieties of *Crocus*, *Snowdrop*, etc., near the house. Protect *Chrysanthemums* from frost, or the suckers will be injured by frost. *Hollyhocks* now planted bloom much more vigorous than if delayed till spring. *Hotbeds*, etc., for forcing flowers should be prepared. Suckers of *Roses* should be taken off, and *Roses* should be planted, if they are to bloom well next season. *Dahlia*-seed must be kept secure from wet, the roots too from being injured by frost or damp, so as to be mouldy.

FORCING STOVE.—The ornamental and fragrant flowers for winter decoration, should regularly be introduced, such as *Roses*, *Gesnerias*, *Heliotropes*, *Corrœas*, *Cinerarias*, *Cactus*, *Eranthemums*, *Scarlet Geraniums*, *Gardenias*, *Hyacinths*, *Crocuses*, etc. (See lists in calendars of former volumes.)

GREENHOUSE.—Only give as much water to this class of plants as will just keep the soil moist (not wet), and let it be given in the morning. Admit air freely, so as only to keep frost out. Do not allow *Chrysanthemums* done blooming to remain longer, or suckers will spindle up. *Camellias* must not be allowed to become dry, or the flower-buds will drop, let them be kept moist. Where there are clusters of flower-buds, thin them, so as to leave only one at a place. *Cinerarias* are liable to be attacked by green-fly; if they become so place them in a frame closed, and fumigate with tobacco. *Pelargoniums* for exhibitions next season must not be forced forward, but kept stiff. Such as fill the pots with roots should be put into a size larger. About the end of the month, stop the leads of longest shoots, to make them throw out laterals. Do not crowd the plants. (See articles on culture of in previous numbers.) *Calceolarias* must not have much water; shoots will often have roots protruding underneath, such should be potted off. *Verbenas* in frames must be kept near the glass, have plenty of air, and be careful not to over-water them. *Ericas*, *Epacris*, *Azaleas*, etc., require an airy situation, only protect from cold east or north winds. Plants that have extended as far as desirable should have the leading shoots stopped. The greenhouse should be ornamented with *Chinese Primroses*, *Cinerarias*, etc. Do not allow the surface of the soil to be crusted, or covered with moss, but let it occasionally be stirred; this very much promotes the health of the plants. Pots that become *green* are injurious, excluding air from the roots, clean them. Only have just as much fire as will keep out frost, and dry up damps.

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